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THE  
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EDITORIAL.

**INTRA-NASAL OPERATIONS—THE PREPARATION AND  
AFTER-TREATMENT.**

THE question of the preparation and after-treatment in cases of intra-nasal operation is one to which no experienced rhinologist will refuse his earnest attention. To many such it must be astounding to read the recommendations of energetic surgical treatment in the interior of this organ, found in various articles, and notably those issuing on the other side of the Atlantic. There may be climatic conditions or other circumstances leading to immunity from post-operative embarrassments on which the practitioners in these islands cannot depend. None will deny that the noses with which we have here to deal, decline in many cases to recover from operative interference in the kindly way to which many of our Trans-Atlantic colleagues seem to be accustomed. The comparative paucity of reference to cases of operation on the nasal septum, for instance, in the *Proceedings of the London Laryngological Society*, is extremely significant when we realise the extent of the sources from which the members of that Society draw their clinical material. Looking upon the Society as a human institution, we may ascribe the bringing forward of cases to several different factors, namely, the great interest attached to the occurrence of a rare affection, the desire for information on account of the obscurity of its nature, or again, it must be admitted, the very legitimate desire to exhibit a case in which the member is gratified with the success of the treatment employed.

Had operations on the nasal septum been with any great frequency as brilliant as could have been wished, we have no doubt that the operators would have brought them forward more often than has occurred. Many, we have no doubt, have been passing through the same mental condition as Sir Felix Semon, namely, that of dissatisfaction with many of the results obtained in his own hands and in those of other operators whose discretion and skill were also above question. Like him, many others, we are sure, have been hoping, by improvements in technique, to find their results as uniformly brilliant as printed records would lead them to think they ought to expect. Some, no doubt, after a run of consecutive cases in which the results have been all that could be desired, have met some of the dismal surprises of intra-nasal surgery in the shape of cases in which toxic or other serious complications have ensued to the utmost discomfort and disappointment of the operator. Sir Felix Semon tentatively referred the matter in private to various of his *confrères*, and was able to assure himself at once that the difficulties and anxieties which had fallen to his share had proved a source of almost constant anxiety to those of whom he had made enquiries. The views placed before the German Otological Society<sup>1</sup> by Dr. Krebs, show that his mind has been working in the same direction, as our readers will see on a perusal of the interesting paper we present for them in an English guise. The divergence of the opinions of various observers and operators will not surprise the experienced student, and while he will as usual realise that *in medio tutissimus ibis* he will highly appreciate the importance of the ventilation of the subject, for which we are indebted to Dr. Krebs and Sir Felix Semon.

## RETROSPECT OF LARYNGOLOGY, 1903.

BY JOHN MACINTYRE, M.B., C.M., F.R.S.Ed.

DURING the past twelve months we have had no startling developments either in the study of acute or chronic affections of the larynx, but, as we have said in the retrospect of past years, there is every reason to be pleased with the steady progress being made in laryngology, whether studied from the clinical, pathological, or therapeutic standpoints.

<sup>1</sup> Vide page 15 of this JOURNAL.

Careful study of the transactions of the societies, as well as the papers which have appeared in the medical journals, will convince anyone of the truth of what we have stated. When we come to consider the question of acute diseases it is apparent that the etiology is being studied from the pathological aspects with a care and thoroughness which is sure in the end to give definite results. The treatment of diphtheria, at least, by means of antitoxin, has become everywhere recognised as a routine matter of treatment, and the collected results all point to confirmation of the original views and hopes entertained of the usefulness of such an agent. In this connection it may be pointed out that the question of systemic infection from the larynx has received, and deservedly so, much more attention of late, and the views of Drs. de Havilland Hall, Jobson Horne, Cornet, Flügge, and others are of importance.

In chronic affections the same satisfactory progress is everywhere seen, and probably we could find no more fitting example than that to be derived from the excellent discussion which took place in the Laryngological Section of the last meeting of the British Medical Association on the treatment of malignant disease of the larynx. It is now a considerable number of years since Dr. Patrick Heron Watson, of Edinburgh, first excised the larynx, and many of the surgeons of the present day remember the great interest taken in the first case of successful laryngectomy in this country, performed by the late Dr. Foulis. For a number of years many surgeons in different parts of the world performed this operation, but, however brilliant the operation itself might be, the terrible risks involved from shock and septicæmia caused considerable doubt and uncertainty as to whether it would ever become of great service to humanity. That progress, however, has been made is proved by the success which has attended the efforts of such men as Professor Gluck, of Berlin; and, as we have said, probably no better example in our speciality could be suggested at the present moment of the steady progress in surgical procedure than that of the cases we are now discussing. But there is another and even more important aspect to be considered, and that is the possibility of offering relief by means of an operation much less serious, both from its immediate risks and that of blood-poisoning, than complete extirpation of the larynx. In England, at least, Sir Felix Semon and Mr. Butlin have worked at the subject from this particular standpoint. By these workers, and those who are in sympathy with them, a constant demand has been made for early diagnosis, so that the simpler operation of thyrotomy might prove sufficient. It should be remembered that the very earliest workers



in this country, and certainly the late Dr. Foulis, insisted upon the necessity of early diagnosis; but, for a number of years at least, this view was insisted upon largely with a view of laryngectomy, and was largely the result of the experience of the terrible mortality which followed the operation at first. Further, surgeons hold that where one has malignant disease in an organ to deal with it is well that he should not spare the surrounding tissues, lest the disease should have extended to a considerable distance. Many operators, in consideration of the size of the larynx and the possibility of infection, were inclined to think that nothing short of complete excision of the whole organ was justified. If, however, thyrotomy with partial removal can be shown to do all that is required—in other words, if recurrence does not rapidly follow from partial removal of the organ with complete removal of the diseased portion at an early date,—then thyrotomy is destined to take precedence of laryngectomy. The answer to that question can only be one of time, but the fact that Sir Felix Semon has been able to report twenty such cases, and that eighteen have shown no sign of recurrence and have lived for a year or longer, justifies the hope that, as the years roll on and others record their cases, thyrotomy will in all countries stand first, and laryngectomy become less frequent.

It need hardly be pointed out that, brilliant as all of these results have proved, the profession is constantly seeking for some agent which, as in other parts of the body, may prevent the necessity of even the minor operation. The success which attended the application of the X rays in rodent ulcer and superficial epitheliomata in other parts of the body, has led to the hope that in a superficial organ like the larynx they might also prove useful. Unfortunately the reports in this direction are not too encouraging, although Dr. Delavan thought one case improved, and it will be remembered that Dr. Scheppegrell reported in our columns last year a case which he diagnosed as a malignant affection of the larynx, and in which a cure was effected. It is unfortunate in this case that a microscopic test was not applied to the tissues, but, accepting the diagnosis for the moment, there can be no doubt that if it were correct similar results ought to follow in other cases. Unfortunately, so far all the reports in the hands of others are vague as far as cure is concerned, although definite enough results by way of failures have been obtained.

Another chronic affection of the larynx, attracting more attention than perhaps it has had in the past, is lupus. Strangely enough, comparatively few laryngologists have recorded many of

such cases, but that lupus of the throat generally is much more common than has been suspected has been shown to be the case of late. Many of these have turned up at the different clinics where light treatment is being practised, and the interesting paper on the subject by Dr. Christiansen in the October number of our JOURNAL is worthy of consideration. Whether the fact that lupus being a disease often unattended with pain has caused the patients to think less of the conditions of the internal parts than of the deformities of the face or not, one cannot say, but the statement that three fourths showed manifest signs of lupus of the mucous membranes in 1000 cases treated at the Finsen Light Institute at Copenhagen shows what necessity there is for more careful investigation.

Coming to the question of tuberculosis, while it cannot be said that anything new is to be recorded during the year by way of results in treatment, still the early detection of tuberculosis and the benefits of open-air treatment are certain to have a beneficial effect by way of prevention. In this connection we may point out that radium has been attracting the attention of the physicist as well as the physician during the past year, and it has been suggested by Mr. Frederick Soddy that we might be able to apply the rays from radium or perhaps thorium in the case of tubercle of the respiratory tract. The salts of radium and thorium are constantly giving off radio-active elements, although the latter-named salt is much less powerful than the former. Thus it is considered that five minutes' application of radium salt would, *ceteris paribus*, be equivalent to ten years' application of the same weight of a thorium salt. These emanations—some of them at least may be considered gases—are small in amount, so toxic effects need not be feared, but their radio-activity constitutes a danger. Mr. Soddy suggests, therefore, that the thorium salts should be dissolved in water, and that the emanations be removed from the solution by passing a current of air through it. The nitrate is the salt usually employed, and the apparatus for giving it is easily constructed from an ordinary gas wash bottle with inlet and outlet, and a caustic potash tube is inserted in the stream so as to remove moisture or free nitric acid. There are many reasons apart from the price which suggest the thorium salt for experiment, although Professor Rutherford has shown that radium and thorium spontaneously and continually give off these radio-active emanations. For example, thorium requires only a few minutes to completely restore the emanations lost, while radium might take two or three weeks.

When the gases come into contact with anything the film of radio-active material is left behind, and is the cause of the so-called induced or excited activity produced by these elements on neighbouring objects. Mr. Soddy's idea is to allow patients to inhale these emanations in the hope that germicidal properties may do something towards the destruction of micro-organic life in the cavities. The suggestion is based upon the hope that something of a therapeutic effect may be obtained similar to what is described as the result of X rays when applied to malignant disease and lupus on the surface of the body. At present no definite results have been recorded, although many experiments have been made in this direction, but the possibilities in the case of laryngeal affections must be kept in view.

High-frequency currents have been tried in a considerable number of cases of laryngeal affections, particularly where the lesion pointed to implication of the nerves. So far the hopes that were entertained of beneficial results being obtained in phthisis have not been realised. Drs. Mouret and Denoyes have reported a case of paralysis of the right recurrent nerve following a cold, which was cured after eighteen applications. Galvanic and Faradic currents had previously failed. As might have been expected, the same currents have been employed with success in cases of hysterical aphonia.

The literature on the subject presents many interesting features, and the reports of cases in the journals and special works devoted to our subject have certainly been important in quality and number. Many improvements in apparatus have taken place, and altogether, if, as has been said, nothing of an outstanding nature has to be recorded during the year which has just passed, the work all over has certainly reached a higher level, and distinct progress is being made.

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### RETROSPECT OF RHINOLOGY, 1903.

By W. MILLIGAN, M.D.

THE correction of certain nasal deformities of organic or of traumatic origin by the subcutaneous injection of paraffin has received a very considerable share of attention of late, and many excellent and, it is to be hoped, permanent results have been obtained. The

technique has undergone various modifications at the hands of various operators, and several specially constructed syringes have been introduced claiming particular advantages. Whatever syringe be employed or whatever paraffin be selected, great care and exactitude in manipulation are essential to success. The operation, small as it may appear, is by no means easy, and should not be entered upon without a due appreciation of the risks involved.

The case of embolism of the central artery of the retina immediately following the injection of paraffin for the relief of nasal deformity, recorded by L. M. Hurd (*Med. Record*, July 11, 1903), should serve as a warning to those who regard this method of treatment as simple and devoid of danger. Time alone will show whether the results are of a lasting nature. Cases, however, which have been observed for periods of over two years by various operators, have been found to have undergone no appreciable change.

The method of paraffin injection for the relief of deformity has also been employed, and with satisfactory results, in the treatment of depressions following frontal sinus and mastoid operations, and quite recently its sphere of usefulness has been extended to build up the atrophied turbinal bodies met with in cases of atrophic rhinitis (ozæna). Moure and Brindel have employed this method in seventy cases, and with good results (*JOURN. OF LARYNG., RHINOL., AND OTOL.*, June, 1903). R. Lake (*Lancet*, 1903), working upon the same lines, says that the effect of artificially building up the turbinal bodies enables the patient to get rid of crusts, etc., with greater ease and comfort.

Stuart-Low has found the local use and the internal administration of mucin of value in cases of atrophic rhinitis, but whether the beneficial effects claimed are not in part due at any rate to the adventitious treatment employed at the same time is open to question.

Cases of focal suppuration co-existing with atrophic rhinitis have been recorded by various observers, but which affection is primary and which secondary is by no means a settled question.

No particular advance has to be recorded in the surgical treatment of focal suppuration during the past year. Numerous cases have been recorded, the rhinological mind being now fully impressed with the importance of accessory sinus suppuration, both in its relation to affections of the upper respiratory tract and ear, and also to general systemic infections.

Moure's operation for the correction of deflected septa appears,



if one may judge from current literature, to be widely practised and to afford good results. Pegler's septotome, for use in this particular operation, will be found a valuable addition to the rhinologist's armamentarium.

The treatment of malignant disease of the nasal passages and of the epipharynx has been much to the fore during the year, and attention has been called by various writers to the comparatively non-malignant (clinical) course which various intra-nasal sarcomata (histological) run. J. Price-Brown has come forward as a strong advocate of the employment of the electro-cautery and snare in such cases. The use of the X rays, high-potential or high-frequency currents, in inoperable cases has been advocated, and has been successfully employed by Macintyre.

Cases of lupus of the mucosa of the upper respiratory tract have been recorded by many observers, and the use of the Finsen light apparatus in their treatment is strongly advocated by Christiansen, of Copenhagen.

An important contribution to the treatment of hay fever has been made by Professor Dunbar, of Hamburg, and has been brought prominently before the profession in this country by a series of articles in the *British Medical Journal* from the pen of Sir Felix Semon. Dunbar's antitoxin appears to be capable of preventing a reappearance of the disagreeable subjective symptoms of hay fever, whilst repeated applications apparently render the patient immune.

The treatment of vaso-motor rhinitis has been as varied as it has been unsatisfactory, and this year we have to place on record yet another method of treatment, which is claimed by its authors, Lermoyez and Mahu, to possess great therapeutical advantages. The treatment consists in passing hot air from a specially constructed apparatus over the hyperæsthetic turbinal bodies.

The best means of producing anæsthesia for minor nasal operations has been the subject of several important papers of late. Brown Kelly advocates the administration of bromide of ethyl, which gives a longer period of anæsthesia than nitrous oxide. Unconsciousness is produced in about one minute, and lasts for close upon two minutes. It can be given with safety with the patient in the sitting position, and no special apparatus is required for its administration. Chloride of ethyl has also been recommended for short operations by Vacher. Its action is also rapid, and as a rule neither headache nor vomiting follow its employment. Heininx, on the other hand, considers somnoform (60 per cent. chloroethyl, 35 per cent. chlormethyl, and 5 per cent. bromethyl)

the best anæsthetic for this purpose. It is less poisonous than bromethyl, and any disagreeable post-operative symptoms, *e. g.* sickness, are rare.

H. E. G. Boyle, in a paper on this subject communicated to the Abernethian Society, December 3, 1903, based his observations on 500 administrations of somnoform for various surgical operations; 200 of these were for the removal of tonsils and adenoids. Boyle is of the opinion that for this operation somnoform, properly and judiciously administered, possesses advantages which cannot be overlooked. The duration of anæsthesia is amply sufficient for the removal of either tonsils or adenoids, and in most cases, and especially in children, gives enough time for the removal of both. Moreover the after-effects, or rather the absence of after-effects, he has found to be particularly encouraging.

In a brief summary of the year's work it is difficult to enter into many details of the new work, or of the development of the work of previous years, but enough has been said to show that the past year has been one of progress in this special department of practice.

### RETROSPECT OF OTOTOLOGY, 1903.

BY DUNDAS GRANT, F.R.C.S.ENG., AND W. CHICHELE NOURSE,  
F.R.C.S.EDIN.

DURING the year now expired otologists at home and abroad have occupied themselves with steady progress along the established lines rather than by breaking new ground in any very striking directions. Among the most progressive features of the year may be noted the tendency to include the labyrinth as within the range of surgical intervention. Hinsberg has given a very exhaustive account of it, and Lermoyez, acknowledging the influence of Hinsberg's inspiration, has in his usual lucid manner prepared a condensed and clarified statement of our present knowledge of suppuration of the labyrinth. The subject is to be discussed at the International Otological Congress at Bordeaux this year. Professor Denker has reviewed the history of our knowledge of sclerosis of the middle ear. Pathology is in regard to this distressing affection far ahead of therapeutics. We must hope in the future for new light on this also. Professors Bezold and Ostmann have

still further added to our knowledge of the "functional" tests, as will be seen in the following condensed retrospect. The numbers refer to the pages of the volume of the JOURNAL OF LARYNGOLOGY for 1903.

MEATUS.—Three cases of *Congenital Atresia with Microtia* are recorded by Jürgens (557). At the British Laryngological and Otological Association Wingrave (416) showed microscopic specimens of *Ceruminous Glands*. *Otomycosis in the Malay Archipelago*, where it is exceedingly common, forms the subject of an interesting paper by Galloway, of Singapore (64). At the Otological Society of the United Kingdom Tilley (85) exhibited a patient from whom he had removed a large hyperostosis. The co-existence of suppuration had necessitated the performance of a radical mastoid operation. The discussion which followed chiefly turned upon the value of grafting.

MEMBRANE AND OSSICLES.—At the American Laryngological, Rhinological, and Otological Society Roy (607) discussed the value of *Exploratory Puncture of the Membrane*, Dench (611) writes upon *Ossiculectomy*, Clarence Blake (108) on *Tension Anomalies of the Sound-transmitting Apparatus*, and advocates exploratory tympanotomy as an aid to diagnosis. He points out the liability to relaxation of the membrane from the excessive use of the various instruments for pneumo-massage of the tympanum.

CHRONIC NON-SUPPURATIVE CATARRH OF THE MIDDLE EAR.—Hopkins (53) recommends the use of superheated compressed air as an adjunct to other treatment in suitable cases. Stoker (111) found ozone of value when introduced through the Eustachian tube. At the Otological Society of the United Kingdom Philip Nelson (363) showed cases of the upper and lower jaw from a case of *Chronic Middle-ear Catarrh*. Dundas Grant (234) published a lecture upon the *Varieties of Chronic Non-suppurative Disease of the Middle Ear*, in which the distinctive features of otosclerosis are described. At the German Otological Society Denker also (451) read a valuable report upon *Ankylosis of the Staples*. At the American Laryngological, Rhinological, and Otological Society Goldstein (600) read a paper on the *Use and Abuse of the Eustachian Bougie*; at the same society Ducl (602) communicated a paper upon the *Electrolytic Bougie in Catarrhal Deafness*. It seems probable that in the same skilled hands equally good effects might have resulted from the use of a simple bougie.

ACUTE SUPPURATION OF THE MIDDLE EAR.—The treatment of this affection is discussed, and the value of early paracentesis unanimously emphasised, by Gomperz (109), who also alludes to

the treatment of persistent perforations by trichlor-acetic acid, and to the use of artificial ear-drums. Meierhoff (111) and Phillips (223) have also written on this affection. Schroeder (276) records two severe cases caused by the use of "Schneeberger" snuff. Leaven (612) draws attention to the extraordinary frequency of unrecognised otitis media in young children. Klug (558) believes that acute otitis is often infectious, and advises isolation, but Wolff (559), on the other hand, declares that it is not contagious unless secondary to a contagious disease.

**DANGEROUS SEQUELÆ OF SUPPURATION OF THE MIDDLE EAR.**—Numerous important contributions have been made with regard to *Encephalic Abscesses, Meningitis, and Otitic Pyæmia*. We may refer to those by Reverdin and Vallette (54), Claude Douglas (109), A. Knapp (110), Gillet (442), R. M. Simon (447), Gaudier (441), Andrew (501)—all cases of *Cerebellar Abscess*, several yielding instructive autopsies. Cases of *Cerebral Abscess* seem to have been fewer, Brunard and Labarre (440) and Hugh Jones (363) being among the small number of contributors. In some there was naturally a coincident meningitis. *Meningitis*, with a report on the cyto-diagnosis, is recorded by Ledoux (390). *Otitic Pyæmia* is illustrated by two cases reported by Norval Pierce (593), in which there was thrombosis of the jugular bulb, requiring ligature of the internal jugular. Piffel (446) describes his method of exposing the bulb of the jugular vein. Schiffer (446) narrates a case of *Thrombosis of the Cavernous Sinus*; Eulenstein (109) one of *Temporal Bone Toxæmia*; and Breyne (334) one of *Otitic Pyæmia*.

**CHRONIC SUPPURATIVE CATARRH.**—A symposium of papers was presented at the American Laryngological, Rhinological, and Otological Society. Pierce (550), who opened the discussion, dealt with the etiology and pathology; Richardson (550) also treated the same parts of the subject; and McKernon (552) read a paper upon the treatment of complications. A large amount of study has been devoted to the same subject by other observers, which will be alluded to under the heading of "mastoid operations."

**MASTOID DISEASES.**—Dunn (166) describes a small space on the under surface of the mastoid process, under the name of the inferior occipital plate, through which it is probable that perforation takes place in some cases of Bezold's mastoiditis. The same author (223) describes a case of *Acute Suppuration of the Mastoid Cells* involving neither the middle ear nor the antrum. Snow (613) advocates conservatism in the treatment of acute mastoiditis. At the Otological Society of the United Kingdom Lee (357) showed



a case of *Acute Otitis Media and Antrum Disease*, and Permewan (361) one of *Mastoid Suppuration with Intra-cranial Abscess, but without Perforation of the Membrana Tympani*. In the discussion which followed, Ballance and Whitehead mentioned somewhat similar cases. Fagge thought that in such cases the infection might be pneumococcal. Secord (277) describes a case of *Exophthalmos following Mastoiditis*. Trow (613) records a case of *Mastoiditis due to Gonococcus*. Bert Ellis (592), at the American Laryngological, Rhinological, and Otological Society, reported some unusual mastoid cases. Kamm (390) records a case of *Acute Mastoiditis*, in which a swelling extending downwards below the mastoid process proved to be due to scleroderma.

THE MASTOID OPERATION.—Lenoir (166) treats of the *Value of the Supra-meatal Spine as an Operative Landmark in Patients over the age of ten years*. In younger children, where the spine is absent, there is a vascular spot, the "tache spongieuse," which covers the site of the antrum and will serve as a guide. The variations in the course of the facial nerve have been studied by Schwartze (277) and Randall (335). The surgical relations of this nerve have been discussed by Jones (294), in a brief but valuable paper. At the Otological Society of the United Kingdom Dundas Grant (84) showed a case of *Cholesteatoma of the Attic and Antrum* in which he had carried out the radical operation, leaving the matrix, with a successful result. At the British Laryngological, Rhinological, and Otological Association Grant (209) also showed a case of *Cholesteatoma* which he had operated on with grafting, having as an exceptional proceeding turned out the cholesteatoma with its entire matrix. *The After-treatment of Radical Operations without Packing* formed the subject of a paper by Zur Muehlen (613), and was discussed by Lermoyez (352) at the International Medical Congress at Madrid. Milligan (358), at the Otological Society, showed two cases of *Chronic Suppurative Middle-ear Disease*; a discussion chiefly upon the after-treatment without tampon followed. Tilley referred to Heath's *early instillation of alcohol*. Knapp and Jordan (445) give a report of *forty radical mastoid operations*. Ray (551) condemns Wilde's incision. Moestig-Moorhof (392) describes an *iodoform stopping* for filling cavities in bones which might prove of use in some mastoid operations. Chevalier Jackson (389), writing upon the *Radical Mastoid Operations*, discusses the causes of failure, and describes some details of the operation as performed by him. At the American Laryngological, Rhinological, and Otological Society Dench (590) read a paper on the *Technique of*

*the Radical Mastoid Operation.* A similar subject—namely, the *Technique of Operations on the Temporal Bone in Suppurative Middle-ear Disease*—formed the subject of a discussion in the section of laryngology and otology at the annual meeting of the British Medical Association. It was opened by McBride (513) with a detailed description of the history of the operation, and by Hartmann (531), who dealt with some points of interest in the operation, and with the treatment of labyrinthine suppuration.

**DEAF-MUTISM.**—A joint meeting of the Otological Society of the United Kingdom and the National Association for Teachers of the Deaf was held in July last, when a discussion upon the *Method of Dealing with and Developing the Residual Hearing Power and Speech of the Deaf* was opened by Kerr Love (393) and W. Permewan. At the International Medical Congress at Madrid the *Causes of Deaf-mutism* were discussed by Schmiegelow (347) and Castex (348). Gutzmann (347) also drew attention to the irregular respiration of deaf mutes during speech.

**INTERNAL EAR.**—Among the most striking communications on *Suppuration in the Labyrinth* are that of Hinsberg (443), founded on sixty-one cases, and that of Moure (351). Hugh Jones (77) showed a *Sequestrum from a Subject of Hereditary Syphilis*. Manasse (391) deals with the *Pathology of the Internal Ear and Auditory Nerve*. *Nerve-deafness due to Tobacco* is fully studied by Wingrave (172).

**TUBERCULOSIS OF THE EAR.**—The epochal discussion on this subject held by the Otological Society of the United Kingdom contains statements by many British otologists (155 and 158). Goldstein (113) reports four cases of *Primary Tuberculosis of the Ear followed by Mastoiditis*. We are indebted for other cases and specimens to Fagge (195), Cheatle (195), and Horne (197), the last contributing a paper on the *Clinical Diagnosis and Surgical Treatment of Tuberculosis of the Temporal Bone* (612).

**MALIGNANT DISEASE** is illustrated by cases described by Deanesley, Permewan, Barr, Milligan, Walker, Abbott (77). A most important communication on a case of *Epithelioma of the Middle Ear* (80) comes from A. H. Cheatle, as also one (84) on a *Tumour of the Meatus found to be an Endothelioma*, and a report (197) on a *Slow-growing Adeno-carcinoma*, probably what is now recognised as endothelioma. Cases of *Epithelioma* were narrated by Lee (357), Grant (642), and Permewan (363), affecting the auricle, external meatus, and middle ear respectively. Stockdale (363) and Wingrave (645) give histological communications.

**TREATMENT.**—Mouret and Denoyes (164) have applied high-

frequency currents to cases of sclerosing otitis. Delsaux (223) describes his experience of adrenalin in otology. Marage (54) uses an instrument like a syren for exercising the sense of hearing. Koerner (391) contributes an interesting paper on the methods of treatment and operation employed in his clinique. The *Operative Treatment of Facial Palsy* is discussed by C. Ballance, H. Ballance, and Purves (501), who conclude that facio-hypoglossal anastomosis is to be recommended rather than facio-accessory. Korte's (446) case of *Implantation of the Facial to the Hypoglossal Nerve* controverts the correctness of this view, as the discomfort of the patient in regard to feeding at the time when the facial as well as the lingual muscles were paralysed, was almost intolerable. It is probably best to divide the spinal accessory completely and trust to the cervical nerves to keep up the supply to the trapezius.

TESTS FOR HEARING.—At the International Medical Congress at Madrid Struyschen (350) concludes that more accurate observations can be made upon the minimal degree of hearing as tested by the tuning-fork. At the Otological Society, Wiesbaden, Ostman (561) read a paper upon an objective uniform measure of hearing as supplied by the amplitude of vibration of Edelmann's C and G tuning-forks.

MISCELLANEOUS.—At the Otological Society of the United Kingdom Bronner (83) showed drawings of two cases of retro-auricular opening left after operation treated by paraffin injections. At the same society Baber (87) showed a case of *Objective Clicking Tinnitus*. Pegler (314) also, at the British Laryngological, Rhinological, and Otological Association, showed a case of *Entotic Tinnitus*; and Muck (446) records a case of *Entotic Murmur due to Aneurysm of the Occipital Artery*. Dundas Grant (310 and 641) showed a case of *Deafness due to Myxœdema, with complete recovery of hearing*. At the Otological Society of the United Kingdom Campbell (339) read a paper upon *Cortical Localisation of the Auditory Area*; and Paterson (404) upon the *Development and Morphology of the Ear*. Aderman (386) studies the *Variations of the Masto-squamosal Suture*. Dowling (276) writes upon the *Ear Complications of la Grippe*. At the Otological Society of the United Kingdom Cheatle (354) read a paper upon *Quinine Deafness and its Prevention*; it led to an interesting discussion. Somers (558) writes upon the *Theory of Cross Education as applied to the Auditory Apparatus*. At the American Laryngological, Rhinological, and Otological Society Wendell Phillips (630) read a paper on *Life Insurance and Ear Diseases*, especially in regard to suppurative disease; he considers that chronic foetid discharge indicates that the person so affected

is a bad life. The radical operation is destined to become an important factor in considering risks. At the same Society Braislin (632) reported a case of *Teratoma of the Ear*. Voss (672) noted three cases of *Encephalitis associated with Otitis Media*.

We have not referred to all the papers on otology which have appeared in full or in abstract in the JOURNAL during the past year, but we trust we have sufficiently indicated the chief points of novelty and interest.

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#### DATES OF GENERAL MEETINGS IN LONDON OF SPECIAL SOCIETIES DURING 1904.

THE BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION, at 11, Chandos Street, Cavendish Square, W., at 4 p.m. on Fridays—January 29, March 11 (annual dinner), May 13, November 11.

THE LARYNGOLOGICAL SOCIETY OF LONDON, at 20, Hanover Square, W., at 5 p.m., on Fridays—January 15 (annual dinner), February 5, March 4, April 8, May 6, June 3.

THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM, at 11, Chandos Street, Cavendish Square, W., at 4.30 p.m., on Mondays—February 1, March 7, May 2, December 5 (annual dinner).

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### SOCIETIES' PROCEEDINGS.

#### PROCEEDINGS OF THE GERMAN OTOLOGICAL SOCIETY.

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May 29 and 30, 1903.

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#### INTRA-NASAL OPERATIONS: THE PREPARATORY STEPS AND AFTER-TREATMENT.

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By DR. G. KREBS, Hildesheim.

*Translated by* Dr. WESTERMAN.

OPINIONS do not vary greatly as to the preparations for, and after-treatment in, aural operations, but there is no such consensus of opinion with regard to the steps to be taken before and after an intra-nasal operation. I do not propose in this paper



to enter into or discuss the literature on the subject, but will shortly describe the method I adopt in my own practice.

**PREPARATORY STEPS.**—In the more extensive operations the external nares and surrounding parts should be cleansed and disinfected with soap, ether, and sublimate solution. The patient's monstache should be bound down by a narrow bandage which has been wrung out of sublimate solution. The majority of nasal operations, however, being of a minor character, require no such extensive preparation.

As a rule it is not necessary to attempt disinfection of the interior of the nose. When there is much secretion or formation of crusts which prevent one having a good view of the parts, the cavity may be syringed out with warm (30° C. or 70° F.) sterile salt solution, or a 4 per cent. boracic acid lotion. Washing out the nose for the purpose of disinfection is never carried out; Dr. StClair Thomson and others have shown, bacteriologically, that this is neither necessary nor useful. The idea that by lavage one can kill bacteria which may be in the nasal secretion is a mistaken one, because it has been shown that mixing secretion containing bacteria with a strong disinfectant does not always kill the germs, even after twenty-four hours' contact.

Although we do not take special means to remove or destroy any germs which may be present, we must be careful not to introduce any new form of infection. The instruments ought to be sterilised, and this is best done in boiling water, not in soda solution, which, being alkaline, renders them slippery to hold. The instruments are brought on to the table on the perforated tray of the steriliser. Everything should be boiled, even the cold wire snares and the galvano-cautery points. The latter ought, however, not to be so treated immediately before use, unless they are the so-called aseptic points used by B. Fraenkel and Hermann. Gauze swabs must be sterilised, as also the cotton wool, for which Killian's holder is to be recommended.

It is hardly possible, for many reasons, to render the hands carefully aseptic before operations to be done in the consulting room; fortunately, however, it is not necessary.

Not one of our colleagues before using the nasal snare would cleanse his hands in the painstaking and careful manner which the obstetrician follows before performing a midwifery operation. Nevertheless a certain preparation of one's hands should always be carried out. Otologists and rhinologists are continually coming in contact with pus-producing bacilli, and it is well not to get one's fingers soiled; therefore all pledgets of wool which have pus

on them should be removed with forceps, and eczematous and ulcerated parts of the skin should only be touched with a thick piece of gauze.

Schleich's marble soap is an excellent thing for the hands; it is not so disinfectant as its author supposed, yet it suffices for our object perfectly, and in practice it is a pleasant and elegant cosmetic; it makes the hands soft and smooth. If one can bear it, the hands may also be washed in sublimate solution. When operating with a reflected light the hands may be kept clean by using a reflecting mirror having a Bergeat's vulcanite band, or Bergeat-Zarniko's aluminium finger-plates.

Regarding the use of anæsthetics, intra-nasal operations can nearly always be performed under local anæsthesia. Only in very unmanageable children and very nervous adults is a general narcosis to be considered; for this purpose I now use only chloroform.

The chief local anæsthetic used is a watery solution of cocaine; unfortunately this cannot be boiled, but one can add as a disinfectant salicylic acid (1 in 1000). It is more important that one should not dip questionable wool pledgets in the bottle, and thus probably infect the solution. I am in the habit of using drop glasses, in which a solution of cocaine in sterilised water will keep for some time sterile. This method has also the advantage of being thrifty and fairly exact in dosage. There are three methods of applying cocaine to the nasal tissues: firstly, as a spray; secondly, by means of small pledgets of wool, which are left on the desired place for a short time; thirdly, by repeatedly painting the seat of operation. The last-mentioned is the preferable one, because the desired spot is in this way best reached, and the minimum amount of cocaine is used. For most operations a 10 per cent. solution suffices, but for the galvano-cautery and operations on the bony parts a 20 per cent. solution is more satisfactory. The posterior ends of the inferior turbinate, when not very much hypertrophied, contract to such an extent after the application of cocaine that one cannot secure them with a wire snare. In such cases I advise as an anæsthetic a 5 per cent. solution of eucaine, or Bonain's mixture (ac. carbolic, 0.5; menthol, cocaine m. ãã, 2.0; spirit. vini Gallici, 10.0).

Before applying the last mixture, which is a caustic, it is advisable to apply a weak solution of cocaine. This method is specially useful before applying the galvano-cautery. Schleich's infiltration anæsthesia is useful in the vestibulum, the horny epithelium of which is insusceptible to the ordinary applications.

Latterly supra-renal extract has been recommended as an anæsthetic. I have tried atrabilin and adrenalin chloride many times, and have failed absolutely to get an anæsthetic effect; on the other hand, when used with cocaine or eucaine they seem to strengthen and prolong the anæsthesia, and perhaps to lessen the risk of cocaine intoxication. More important is the use of supra-renal extract in rendering the field of operation more or less bloodless. This is specially important in operations on the septum and in the upper parts of the nose. The use of adrenalin as a hæmostatic will be considered later.

The operation having been done, the first thing to consider is the control of the hæmorrhage. Wounds of the cavernous tissue of the inferior turbinate body and wounds of the septum are followed not only by much primary hæmorrhage, but by secondary hæmorrhage also; while bleeding from other parts of the nose after an operation is not so considerable. Many hold that, in cases where there is much bleeding, plugging of the nose is indispensable, but against this the following points must be mentioned:—(1) Nasal plugging, partial or complete, does not guard against secondary hæmorrhage, but, on the contrary, it often leads to this by causing much sneezing, especially if iodoform gauze is used. (2) On removing the plug after twenty-four hours the bleeding starts afresh. (3) The plugging, however well done, may be injurious to the patient; it may be the cause of an infection of the accessory sinuses, of meningitis, of conjunctivitis, dacryo-cystitis, or of otitis media. The cases of otitis media, which I have seen after an intra-nasal operation, occurred in patients in whom plugging had been done. (4) The plugging, both at the time of its introduction and afterwards, is extremely unpleasant to the patient. Patients who have been so treated by experienced operators express their astonishment and thankfulness when they see that in my hands things go on just as well—nay, even better—without any plugging after the operation. I only plug after operations on the bony parts of the nose, and then only very loosely with iodoform gauze, the object not being to compress but to form a protective covering. I usually proceed as follows:—Immediately after the operation a small strip of gauze about the length and breadth of one's little finger, or a small piece of cotton wool soaked in adrenalin chloride 1 in 4000, is placed on the bleeding part, where it remains about ten minutes. The patient is told to keep as quiet as possible, to lie down with the head high, to loosen the collar, not to expire through the nostrils, to place cold compresses on the nose if hæmorrhage should come on, and, above all, to breathe in the following manner:—

With mouth closed to take a deep breath, then with mouth open to expire slowly. This last may, to some, seem somewhat old-fashioned and unsurgical, but I may add that it appears in the text-book of the well-known surgeon Karl Hueter. Hueter bases it on physiology by saying that the blood is by this means sucked into the thorax, thus rendering the nasal mucous membrane bloodless; at the same time, during inspiration the blood-flow is to some extent retarded in the bleeding vessel, which becomes closed by the formation of a clot. This simple procedure, which is chiefly a deep inspiration through the half of the nose operated on, is specially useful in different forms of nasal bleeding, and should not be forgotten. The adoption of the above methods has yielded me much more trustworthy results than any plugging or any scab formation produced by using the galvano-cautery or glacial acetic acid, or by ferropyrin, hydrogen peroxide, or gelatine. In the method described the patient runs no risk whatever. The objections raised by Escat, Lehmann (Strassburg), and others as to the hæmostatic value of adrenalin have not been proved. My method will certainly not always prevent bleeding, and the problem of checking hæmorrhage from the nose cannot be said to be yet solved.

The further treatment of the wound requires only a few sentences. A normally healing wound ought not to be looked on as a thing calling for much treatment. The patient who feels no inconvenience from the operation should be told that he has an open wound, and should therefore abstain from all alcoholic drinks, forego swimming and plunge-baths, and should not blow his nose violently lest any secretion be carried into the middle ear through the Eustachian tube. The cavity of the nose itself should be left alone. It is one of the golden rules in surgery not to disturb a healthy wound by probing, etc. This is very often forgotten, and after the removal of a part of a turbinate the patient is ordered back in a day or two and the probe used to separate the slough; one sees frequently lavage, swabbing, cauterisation of granulations, burning, powdering, etc. All of these are for the most part superfluous—in fact, to some extent detrimental to the healing process. It is, of course, necessary to know that the wound is healing normally, that there are no synechiæ, and that the patient has been relieved by the operation. After many operations such as those done with the snare, it is enough if one sees the patient again after fourteen days. Others it is advisable to see more often, but one cannot lay down any fixed rule. I think, however, that a normal wound requires inspection on the first, seventh, fourteenth, and twenty-eighth days after the opera-



tion. At any of these times dried crusts which are troublesome may be removed, excessive granulations can be touched with lunar caustic, and a little antiseptic powder (xeroform) may be blown into the nose. I cannot convince myself that a regular insufflation of powders, such as iodoform, aristol, airol, dermatol, xeroform, and menthol boric acid, helps on the healing. It is recommended in the case of galvano-cautery wounds, and others in which there is much secretion, to smear a little weak ointment (menthol vaseline 1 in 100) at the anterior nares to avoid eczema. Should a synechia threaten to form, treatment must be more active. The patient must be seen at least every other day, and the nose treated with cocaine and adrenalin to lessen the swelling, and then any adhesion must be cut through and a small piece of gutta-percha tissue, which has been rubbed with sublimate and then washed in salt solution, should be laid in. If the patient does not sneeze, such a strip will remain in place for hours, and even days. Many recommend orthopædic treatment after an operation for deviation of the septum. This is unnecessary when there has been a thorough removal of the displaced part, and in other cases it is unsuccessful. Gentlemen, the method I have recommended to be followed in the preparation for and treatment after nasal operations will prevent many of the unfortunate sequelæ, and reduce others to a minimum. Might I be allowed to emphasise that, while you carry out all that is needful, it is necessary, at the same time, to avoid all that is superfluous.

#### DISCUSSION.

Dr. C. WOLF asked the lecturer if he had had any experience of increased secondary hæmorrhage after the use of adrenalin.

Dr. THIES, in opposition to Dr. Krebs' opinion, considered that nasal plugging was not always to be dispensed with after the use of adrenalin, because it was often many hours after the operation that a severe secondary hæmorrhage occurred that could be controlled without plugging. On the contrary, it seemed as if the hæmorrhage were specially severe when adrenalin had been used and no subsequent plugging. Clinically, therefore, the non-plugging of the nose after the use of adrenalin should only be allowed when a doctor could be got at a moment's notice.

Dr. SCHEIBE in nearly all cases had omitted plugging; healing, he found, went on much better, and synechiæ were avoided.

Dr. SIEBENMANN said in hospital practice he had seen anginas occur after plugging with iodoform or vioform gauze, but privately

he had never seen any harm therefrom. The ganze must certainly be used in strips, previously wetted and squeezed out; only the part of the nose concerned should be plugged, and not the whole cavity. Whoever has experienced a severe and dangerous hæmorrhage occurring in a patient living at a distance must, to do his duty, avoid all risk, and only in exceptional cases omit plugging.

Dr. FISCHENICH denied Krebs' statement that plugging was entirely unnecessary. After the use of both cocaine and adrenalin a violent bleeding may occur, not only soon after the operation, but also after the lapse of many days. In the out-patient department plugging was especially necessary.

Dr. WERNER reminded the Society of the unfavourable results after non-plugging in nasal operations communicated to the second gathering of the South German Laryngologists. Dr. Werner thought that the truth rested in adopting a middle course. One could not avoid a primary plugging, and this having been removed at the earliest on the third day, the nose should be left alone. In this way healing follows without reaction and without anginas.

Dr. KÖRNER avoided nasal plugging because it was unnecessary and harmful in all operation cases, which could remain for at least two days in the clinic.

Dr. BARKAN recommended a very thin rubber finger-stall, packed lightly with strips of ganze, and introduced into the nose.

Dr. ZARNIKO agreed with Dr. Krebs, especially as he had previously given expression to the same opinions. The operator could usually tell beforehand whether plugging was necessary or not. Spurting vessels (mostly in the septum) having been sealed with the galvano-cautery, the patient could be left; at the same time he should be cautioned, and should not be allowed to go far away lest hæmorrhage occurred. Those given to taking alcohol should abstain for some days before operation.

Dr. KRONENBERG drew attention to the fact that, usually, enough importance was not attached to the *clinical* treatment in nasal operations. When an extensive septum operation had been performed the patient should be observed clinically for some time afterwards. When this was arranged, plugging could nearly always be dispensed with.

Dr. PANSE remarked that when ganze plugging would not check the hæmorrhage, plugging with iodoform cotton wool would be satisfactory.

Dr. KREBS, in reply, said Bukofzer's skin experiments had distinctly shown that adrenalin caused no consecutive hyperæmia. Dr. Krebs did not trust entirely to adrenalin as a hæmostatic, but

laid special weight on Hueter's method of respiration. Even before adrenalin came to be used he had operated on patients and sent them home without any plugging.

## PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

*Eighty-fifth Ordinary Meeting, November 6, 1903.*

P. McBRIDE, M.D., F.R.C.P.Ed., *President, in the Chair.*

### DISCUSSION ON

### THE AFTER-TREATMENT OF INTRA-NASAL OPERATIONS (EXCLUDING NASO-PHARYNGEAL).

Sir FELIX SEMON, in opening the discussion, said:

MR. PRESIDENT AND GENTLEMEN,—The practitioner who looks for help and guidance to modern rhinological literature, concerning the question of after-treatment of intra-nasal operations, will reap but a poor harvest. Some even of the best and most modern rhinological text-books pass over the subject almost in silence, others dismiss it with a few words or, at most, sentences. That difficulties may be encountered in connection with this subject is hardly referred to in any of them, and it is quite the exception to meet with utterances such as Moritz Schmidt's:<sup>1</sup> "The duration of the healing (viz. after operations for the removal of spurs, etc., from the septum) demands about four weeks in uncomplicated cases; should perforation of the septum have been unavoidable more time is required;" and as Chiari's:<sup>2</sup> "The after-treatment of these cases (*i. e.* when the lower turbinated bone or its anterior part has been removed instead of operating upon the deviated septum) is much simpler and shorter than in complicated operations for deviations, spurs of the septum, etc. For after such, one often has to plug, dilate, and perform small subsidiary operations for weeks, whilst after resection or extirpation of the lower turbinated body a four days' tamponnade by means of iodoform gauze suffices. Besides, after operations for deviation, perforation often threatens."

From this "conspiracy of silence," if I may so call it, it would seem but natural to draw the conclusion that the after-treatment

<sup>1</sup> *Die Krankheiten der oberen Luftwege*, 3te Auflage, 1903, p. 597.

<sup>2</sup> *Die Krankheiten der Nase*, 1902, p. 168.

of intra-nasal operations was a simple and trivial matter, not deserving any special discussion, and that experiences such as Schmidt's and Chiari's were quite exceptional. In reality, however, I venture to think that this impression does not correspond to the facts of the case. Personally, I must confess that, if not very often, yet more frequently than I like, I have met with difficulties in the after-treatment of intra-nasal operations. Seeing the general silence on the topic in the admittedly best text-books, I naturally at first considered these difficulties to be due either to particular bad luck, or to particular clumsiness of my own, and I equally naturally felt somewhat shy at confiding my troubles to anybody. But when I had summoned sufficient courage to do so in private conversation with a few fellow-specialists of admittedly great manual dexterity, I found to my surprise—and might I say to my relief?—that the difficulties mentioned by Chiari, and experienced by myself, were by no means so exceptional as I had concluded them to be, and that they had been encountered—occasionally at least—by almost every man of experience to whom I spoke on the subject. This also clearly appeared from the discussion which incidentally took place in this Society on March 3rd, 1899. Last year, again, Dr. Hill,<sup>1</sup> in the discussion of Dr. Lambert Lack's case of symmetrical thickening of the upper and anterior part of the nasal septum,<sup>2</sup> had the courage to state in this Society that he had had in cases of operations on the septum difficulties and disappointments, and that he had almost come to the conclusion that there was a tendency in all soft thickenings of the septum to recur after removal, and sometimes even of hard structures also. In the same discussion Dr. Pegler described a case in which he had repeatedly to operate upon a swelling of the septum, and in which the patient ultimately ceased to attend.

Under these circumstances I felt justified in renewing, when the question came before your Council, which subject should this year be chosen for a general discussion, the proposal which I had repeatedly made previously when the topic incidentally crept up in the course of discussion on individual cases shown to the Society, viz. that one of our meetings should be devoted to the discussion of the after-treatment of intra-nasal operations. The Council adopted that suggestion, and my belief that the subject is a suitable one for the purpose has since then been further strengthened by the fact that at the recent meeting of German Otolologists at Wiesbaden on the 29th and 30th of May of the present year, Dr. G. Krebs, of

<sup>1</sup> JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, vol. xvii, p. 546.

<sup>2</sup> *Proceedings of the Laryngological Society of London*, May 2, 1902.



Hildesheim, read a paper on "The Preparation and After-treatment of Intra-nasal Operations," which led to a very animated discussion in which ten different speakers took part, and which revealed a great diversity of opinion amongst men of considerable experience on this particular question. I wish to express here my sincere thanks to Dr. Krebs for very kindly sending me a copy of his paper, which has since been published in the *Verhandlungen der Deutschen Otologischen Gesellschaft*, and for a short précis of the discussion which followed the reading of his paper.

To make our discussion practically useful I propose, with the permission of the Society, to limit my observations to the after-treatment of more strictly speaking intra-nasal operations, particularly to those undertaken for the relief of nasal stenosis, and to entirely exclude the after-treatment of operations performed on account of disease in the accessory sinuses and in the nasopharyngeal cavity. The great majority of operations undertaken in affections of the accessory cavities are performed on account of chronic suppuration in those cavities, and this one fact so materially alters the character of the after-treatment, that to discuss these operations jointly with truly intra-nasal operations undertaken for the relief of stenosis would in all probability lead to a desultory discussion, and defeat the practical objects which I have at heart. Similar objections obtain with regard to the operations, including the after-treatment of naso-pharyngeal affections, and I therefore hope that I have the permission of the Society to limit my own observations to, and invite discussion on, the after-treatment of strictly intra-nasal operations only. It may perhaps appear to some members that the subject thus defined was a very narrow one, but practical experience has taught me that as a rule more useful discussions result from the thorough thrashing out of one definite subject, than from the inclusion of heterogeneous topics in one and the same discussion, and I hope that the present occasion will make no exception to this rule.

On the other hand, it will be indispensable to include in our discussion the questions of preparation for these operations, of the selection of the method of operation, and of the employment of cocaine and adrenalin during the performance of the operations themselves, as these topics are inseparably connected with the question of after-treatment which forms the subject proper of our discussion to-day.

This applies particularly to the question of the selection of the method of operation, and I propose therefore to discuss in my introductory remarks the main principles of the after-treatment in

connection with the question of the selection of the method of operation.

With regard to the preparations for intra-nasal operations I need not dilate, speaking before a society of experts, upon the impossibility of proceeding so strictly aseptically as in most other regions of the body. Even if after completion of an intra-nasal operation the nostril operated upon could be plugged so hermetically as to effectually prevent the entry of infective material both from the front and posteriorly, yet the danger of infection by the secretion of the accessory sinuses could not be effectually excluded. Additionally it must be confessed that the conditions under which many of these operations are performed, viz. during consulting hours at the operator's private residence, or in the out-patient room of a hospital, are not particularly favourable to the performance of really aseptic operations. Fortunately, however, practical experience, as well as the bacteriological investigations of StClair Thomson and Hewlett, and of Wurtz and Lermoyez, have shown that the mucous membrane of the nose is not by any means a good soil for the development of pathogenic bacteria; and—from the point of view of clinical experience—it is a curious fact that if any septic complications should arise after intra-nasal operations they usually do not occur in the nose itself, but much more frequently in the pharynx in the shape of tonsillitis, or of a more general inflammation of the mucous membrane of the pharynx or naso-pharynx, or in the form of an acute otitis media. In spite of this comparative immunity of the nasal mucous membrane, however, it will of course be the duty of every operator to carefully sterilise all instruments and other objects, such as gauze, cotton wool, brushes, celluloid plates, etc., which, during and after the performance of intra-nasal operations, may come into contact with the parts operated upon. That the operator's hands should be properly disinfected before the performance of any such operation goes without saying. In exceptional cases it may be necessary to disinfect the patient's external nose and its surroundings in the usual way by means of soap, ether, and sublimate. In cases in which there is much secretion or formation of crusts in the nose these will have to be removed previous to the operation itself by means of a tepid 4 per cent. boracic acid or a physiological salt solution. I refrain from entering upon further details concerning the preparations for the operation, as the subject is only incidental to my task proper. A number of noteworthy particulars concerning this question will be found in Dr. Krebs' paper previously alluded to.

Concerning the operation itself, I take it that in the great majority of cases local anæsthesia will be preferred to general. It is so very essential that the operator should at every moment see exactly what he is doing, that the one advantage of the patient sitting upright, and of the operator being able to concentrate a powerful light upon the parts to be operated upon, which he thus sees in the position to which he is accustomed, in my opinion quite outweighs all claims which may be made in favour of a general anæsthetic. Moreover, the majority of these operations can be performed so rapidly, and are so little painful after repeated applications of cocaine, that there is no need for a general anæsthetic with its attendant disadvantages, of the employment of an assistant, of interference with the field of operation by the anæsthetist's apparatus, etc. Of the various methods of applying cocaine, viz. by a spray, by the introduction of plugs of cotton wool saturated in a cocaine solution, and by painting the region to be operated upon by means of a camel's-hair brush, I prefer the last named as the surest, and the one least likely to produce symptoms of cocaine poisoning. I always in these cases use a 20 per cent. solution.

With regard to the employment of adrenalin, I have on previous occasions raised the question<sup>1</sup> whether after its use secondary hæmorrhages were not observed more frequently and more abundantly than without its use. Personally I have only had one really serious hæmorrhage after intra-nasal operations, and I am far from accusing the application of adrenalin which I used in this case as its cause. But in spite of Bukofzer's very valuable paper on that subject<sup>2</sup> and of his reply to my question,<sup>3</sup> I confess I am still under the impression that since I have used adrenalin in these cases I hear more frequently statements made by my patients as to the occurrence and persistence of bleeding a few hours after the operation than in previous times. From the somewhat timid but increasing support occasionally given to these statements of mine (see, for instance, Dr. Delie's letter in the *Internationales Centralblatt für Laryngologie*, vol. xviii, p. 400), I conclude that my experience has not been exceptional, and I should be glad to hear in the discussion which is to follow these introductory remarks what the observations of the members of this Society are on that point. In one respect I think there will be general agreement with the advice given by Dr. Krebs, the wisdom of which I had

<sup>1</sup> *Internationales Centralblatt für Laryngologie*, vol. xviii, p. 306.

<sup>2</sup> *Archiv für Laryngologie und Rhinologie*, vol. xiii, p. 2.

<sup>3</sup> *Internationales Centralblatt für Laryngologie*, vol. xviii, p. 354.

appreciated from my own personal experience before reading his communication, viz. that in operations undertaken for reducing the redundant mucous membrane covering the lower turbinated bones, the previous application of adrenalin to these structures deprives us, in consequence of the extreme contraction of the erectile tissue, of a correct judgment of how much ought to be removed, and that in these cases the application of adrenalin is inadvisable. In operations on the septum, etc., I use adrenalin chloride 1 : 1000, and apply this also by means of a camel's-hair brush.

With regard to the various methods of operation, the following ones are at our disposal :

1. Operations by means of chemical caustics (nitrate of silver, chromic acid, trichloroacetic acid, phenol sulpho-ricinicum, etc.).
2. Electrolysis.
3. The galvano-cautery.
4. Cutting instruments (knives, scissors, chisels, saws, trephines, snares, etc.).

Which of these methods is to be employed will, of course, depend upon the nature of the case, and upon the proclivities of the individual operator. Here I have only to deal with the reaction which follows the employment of the individual method used, and the necessities which in consequence may arise with regard to after-treatment.

Excluding electrolysis, which, in spite of the warm recommendation of a few authors, does not appear to have gained a firm footing amongst the usual methods of intra-nasal operations, and of which I have no personal experience, it may be stated, I think, without fear of contradiction, that, generally speaking, of all the methods named, the galvano-cautery is the one which more frequently gives rise to considerable reaction than any other one. Time was, and that not long since, when the galvano-cautery was looked upon as an almost universal panacea in all operations on the nose in which reduction of tissue was aimed at, and when it was used extensively and energetically by almost every one who had to deal with these affections. I think I am correct in summarising the present situation by saying that its popularity, although by no means exhausted, has been considerably on the wane in the course of the last ten years. This is, I believe, not merely due to the fact that the results hoped for in all possible affections of the nose were by no means always obtained, but also in a not inconsiderable degree to the troubles but too often arising from the post-operative reaction after its employment. Not that these troubles arise in *all* cases. I am particularly anxious not to damage



my case by overstating it in any particular, but whilst the reaction after the employment of the galvano-cautery usually keeps within easily controllable bounds, it cannot be denied, I think, that in a large number of cases an eschar forms which at first is firmly adherent, and only several days after the operation becomes sufficiently loosened to be removed without producing fresh reaction. Here one of the troubles occurs, which are, I think, hardly dealt with explicitly enough in most of the text-books, seeing its frequency. Even though great care should have been taken to avoid injury to the opposite mucous surfaces, not rarely a rather general inflammatory reaction follows the application of the galvano-cautery, and if one sees the patient on the day after the operation one finds that the nostril operated upon is swollen in its entirety, and that the opposite surfaces nearly, or, indeed, completely touch one another. Before the operator's mind the spectre of the formation of adhesions rises, and I think we all know how troublesome it is to deal with these. What is he to do under these circumstances? Probably he knows from unpleasant previous experience that meddlingness in these cases but too often revenges itself by ever-repeated and even increasing inflammatory reaction, necessitating very prolonged and tedious after-treatment; leaving matters alone may, on the other hand, actually result in the formation of adhesions between the two opposite surfaces. It is, of course, easy enough to prevent from the very first the touching one another of the two opposite surfaces by interposing a foreign substance, such as a strip of iodoform gauze or some aseptic cotton wool, or a celluloid plate between them, but this again has considerable practical disadvantages. In the first place any foreign substance introduced into the nose after an operation usually produces a great amount of irritation not only in the nose itself, but also in the adjoining territories, and may even lead to septic complications. There will be few specialists, probably, who have not occasionally seen some tonsillitis or general pharyngeal catarrh, or a mild form of general septicæmia manifested by high temperatures and swelling and tenderness of the cervical lymphatics after plugging; whilst rarer complications, such as otitis media or empyema of one or other of the accessory cavities, are by no means unheard of, leaving rarer troubles alone, such as meningitis, dacryocystitis, etc., of which isolated examples may be found in rhinological literature.

Secondly, if the nose be plugged very firmly, and for some length of time, the plug is apt to cause local anæmia of the injured parts, and thereby to prevent healing. This is a point to which Mr.

Waggett in one of our previous discussions, when I raised the question we are now discussing, very properly drew attention.<sup>1</sup>

Thirdly, if but a thin strip of gauze or a celluloid plate be introduced in order not to interfere too much with the circulation in the parts operated upon, they were not rarely sneezed out by the patient; or the opposite might occur, and they might penetrate into the naso-pharynx.

It is not easy to advise, seeing that one is thus sometimes "between the devil and the deep sea," which course ought to be followed, and this is one of the points on which I hope we shall hear in the subsequent discussion the views of experienced members of the Society. Personally, whilst loathing the tedium of the after-treatment in such cases, I am most inclined to merely watch the course of events, and to interfere only when the formation of adhesions, unless prevented, seems unavoidable. But it is undoubtedly a great reproach to the galvano-caustic method, which, indeed, has induced me to more and more narrow its employment of recent years, that this watching sometimes necessitates frequently repeated visits on the part of the patient. In not a few cases, even if all goes well, and the eschar comes spontaneously away, or is removed without difficulty a few days after the operation, fresh sloughs form repeatedly, and have to be watched and removed as necessity may arise, so that the duration of the after-treatment thereby becomes even more prolonged. It has been suggested that most of the drawbacks named may be obviated not by cauterising the free surface of the mucous membrane, but by plunging a pointed galvano-cautery below the surface, and producing adhesions between the mucous covering and the periosteum, thus diminishing the erectility of the soft structures, binding them tightly to the underlying bone, and thereby diminishing the obstruction of the passage of air. I have repeatedly tried that method, but may summarise my experiences by saying that whilst even this method does not infallibly protect against violent inflammatory reaction following, its ultimate results were usually too insignificant to warrant me in recommending it.

Naturally, under these circumstances the employment of other methods of operation suggests itself, such as that of chemical caustics, either after the use of the galvano-cautery, or primarily. At one time after Heryng's recommendation I used crystals of chromic acid, but did not find them sufficiently effective to deal with considerable hypertrophies of the mucous membrane. It

<sup>1</sup> *Proceedings of the Laryngological Society of London, March 3, 1899. JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, vol. xiv, p. 249.*

may be that this experience has deterred me from employing trichloroacetic acid in solid form, as recommended from various quarters. I should like to hear the experiences of members of the Society on its use. I have also formerly frequently availed myself of *solutions* of caustics in various concentrations, but cannot say that, whether they were used alone or after galvano-caustic applications, I have found that they modified in a favourable manner the inflammatory reaction, which to me is the bugbear of operations for nasal stenosis.

Theoretically, one should expect that the employment of cutting instruments would be more calculated than any other method to minimise such inflammatory reaction, and, indeed, in a goodly number of cases in which they are used all is plain sailing. This applies particularly to the snare. How insignificant in most cases is the reaction after removal of nasal polypi by means of the snare! In other cases, again, slight inflammatory oedema may follow the use of the knife, the saw, the electric trephine, chisel, etc., such as would be but natural to expect, but this oedema in a few days subsides spontaneously. In a third category, however, which, according to my personal experience, unfortunately forms a not inconsiderable fraction of the total number of cases coming under observation, the reaction very unexpectedly is much more violent, and the difficulties arise which have induced me on several previous occasions, and again now, to bring the question of the treatment after intra-nasal operation before our Society.

Let me describe by means of an imaginary concrete case what I mean.

A patient consults me on account of considerable nasal stenosis, leading to mouth-breathing, unpleasant sensations in the throat, and frequent catarrh of the respiratory passages. His nose is extremely narrow externally, and internally on both sides. The stenosis is found to be due, say, in the left nostril to a very large spur from the septum, extending not merely through the cartilaginous, but also through a good deal of the bony part. This spur practically occludes the whole nostril, the turbinated bones on that side being not at all enlarged, so that removal, say of the front part of the lower turbinated bone on that side, would obviously not materially improve the condition. [I mention this particularly in view of the advice given by various authors in cases of crests and spurs on the septum obstructing nasal passages to leave the septum alone, and to remove the corresponding part of the turbinated bone or bones. No doubt this is feasible in a

good many cases, but by no means in all, as in the one just sketched.] On the right side the stenosis, in our imaginary patient's case, is due to a certain but not considerable degree of general deviation of the septum into the nostril *plus* some enlargement of the middle and lower turbinated bones, with considerable swelling of the mucous membrane covering these structures. It is obvious that on the right side reduction of the turbinated bones, particularly of the lower one, will be required, whilst on the left removal of the spur is clearly indicated. Reduction of the enlarged turbinates on the right side is performed by means of curved scissors and the snare, according to Mr. Lake's method, and relief is obtained on the right side. The stenosis on the left side is dealt with by means of the electric saw or the electric trephine, which I prefer, after trying a good many methods, to any other. After previous cocainisation and adrenalin application, the spur is removed either at once in its entirety, or possibly by two introductions of the electric trephine, care being taken not to injure the mucous membrane of the opposite turbinate. The spur is thus taken away in its entirety, and even discounting the transitory effect of the cocaine and adrenalin application, obviously a large and sufficient airway has been produced. The patient expresses himself delighted; a few strips of iodoform or cyanide gauze soaked in peroxide of hydrogen are loosely introduced into the operated nostril, not with a view of plugging, but merely of checking any tendency to secondary hæmorrhage. The patient is seen next day, when he reports that no untoward symptom has developed. The iodoform gauze is removed, there is ample passage for air, the surfaces look clean and smooth, and there are no symptoms of inflammatory reaction. Formerly, under such circumstances I used to insufflate some disinfecting powders into the nose, such as iodoform, aristol, eucophen, etc. I have, however, just as little as Krebs,—whose statements on that point I shall quote further on,—been able to convince myself that this proceeding accelerated the healing of the wound, and have given it up. When you see your patient on the following day a large whitish slough may be found to cover the whole of the operated surfaces. This, however, in my experience does not occur frequently, and if it does, the slough can, as a rule, be easily removed at once, not being adherent as in the case of galvano-caustic eschars. Much more frequently, however, the following happens: the nostril, when examined on the second day after operation, is decidedly narrower than it was on the previous day, owing to a general swelling of the field of operation. Naturally one attri-



butes this to some transitory inflammatory œdema, and, remembering the fundamental principle of surgery, viz. if possible not to interfere with the normal healing of wounds, one leaves the matter alone, thinking that this apparently inflammatory swelling will, within a few days, subside of its own accord. Soon, however, one finds that unfortunately one has been mistaken in one's hope. Far from subsiding, the swelling even increases, and has evidently come to stay. Now troubles may arise, such as I described before in connection with galvano-caustic operations: renewed stenosis, danger of adhesions, difficulty in keeping the opposite surfaces asunder, and protracted after-treatment. In other cases no violent reaction and no troublesome symptoms ever occur, except possibly for some length of time the formation of crusts on the operated surfaces, which can be easily washed away with a physiological salt solution. The net result, however, is that, when the healing of the wound has been completed, the permanent enlargement of the passages is much less considerable than it was at the moment of the completion of the operation, and although the patient himself may be, and usually is, quite satisfied, a still small voice within tells the operator that the result is not quite as brilliant as he had flattered himself it would be when he inspected the nostril after the removal of the spur. Nor is it uncommon in my experience that patients who have been operated upon by skilled specialists for nasal stenosis consult one in order to ask whether not something more could be done for them.

Now, what does happen in these cases? Why did it happen? Can it be prevented? These are the three questions which, above all others, will I hope form the main topic of to-day's discussion.

If we want to give an absolutely unprejudiced reply to the first question—what does happen in these cases?—it would be, I think to the effect than an equally undesired and undesirable *excess of repair* is taking place. I purposely avoid the expression "regeneration" because that would imply that all the previous constituents of the removed excrescence—mucous membrane, vessels, nerves, glands, cartilage and perichondrium, bone and periosteum—had been reproduced. In the absence of conclusive histological evidence proving the occurrence of such a regeneration, I refrain from using that expression, although occasional utterances met with in rhinological literature distinctly point to the conclusion that the idea of a true regeneration is entertained by various authors. Personally I am rather inclined to believe that the post-operative permanent swelling, of which I have spoken, is due to new formation of dense connective tissue. The rapidity of

the process and the absence of callus-formation, which could be demonstrated by the touch of the probe, seem to me in favour of the latter view. I put this forward, however, only as an hypothesis; the actual nature of the ultimate tumefaction will have to be ascertained by future microscopic investigation.

In reply to the second question, viz. why did this tumefaction arise?—the most natural reply would seem to be that in all probability it had something to do with the method of the operation, unless indeed it be surmised that the tissues constituting the septum and the floor of the nose were endowed with a special proclivity towards repair after removal. Against both these views, however, the powerful argument at once arises, why, if either the method of the operation, or the physiological properties of the parts were at fault, the excess of repair did not take place in *all* cases? And this objection seems to me a real stumbling-block, for surely if either the method of the operation, or the peculiar conditions of the tissues were to blame, it is not easy to see why the difficulties described should not arise in all cases in which these parts had been subjected to operative interference. Yet it must be emphatically repeated that they are met with in a certain proportion of the cases only which have been operated upon by trephine, saw, chisel, etc., whilst in another fraction all is plain sailing. There remains the lame explanation of a “personal disposition,” an explanation more or less of the nature of “the refuge of the destitute,” and mentioned by Dr. Krebs in that sense in a correspondence which I have had with him on the subject. It holds the less good in the present case, because having given a good deal of attention to this question, I am confident that nobody would be able to say what that personal predisposition consists in. Neither age, nor sex, nor general state of health give the least clue beforehand to the operator what the reaction after the operation will be like. I have had men in rather advanced age, gouty, plethoric, indulging in the luxuries of the table, and in alcohol, healing promptly, and without the least trouble; whilst I have met with the difficulties described more than once in the case of healthy young persons. Quite recently in a case of traumatic nasal stenosis in an otherwise perfectly healthy boy I had to contend with the difficulties described, and had to keep him under observation for nearly five weeks after the operation.

Dr. Krebs tells me that in some of his own cases he thought he had discovered more tangible causes of the difficulties described in the following conditions:

1. Cases in which he believed that not everything diseased had

been thoroughly removed; *e. g.* if in cases of hypertrophy of the lower turbinate the pathological enlargement of the posterior end, or on the lower lateral side, had been left untreated.

2. Cases in which the primary cause had not been first removed; *e. g.* when before removal of the lower turbinate a co-existing primary hypertrophy of the middle turbinate, or adenoid vegetations, or empyemata of the accessory cavities had not been dealt with.

3. Cases in which the after-treatment had been too meddlesome.

I cannot say that I should in any of my own cases accuse such conditions, as those described by Dr. Krebs, to have been the causes of my difficulties. I certainly have met with them much more frequently when operating upon the septum than when removing parts of the turbinates, and the only doubt which I have sometimes had in my own mind was whether possibly the removal of the *mucous membrane* covering the bony or cartilaginous excrescences, for the reduction of which the operation had been undertaken, had anything to do with the subsequent excessive reaction and excessive repair. Theoretically, one would, of course, expect the very opposite, *viz.* greater cicatricial contraction owing to the greater loss of substance produced; and additionally there is the testimony of so experienced an observer as Moritz Schmidt, who states<sup>1</sup> in the latest edition of his text-book that he no longer troubles in the least about the mucous membrane, and that he had seen no disadvantages accruing thereby. Still, I think it right to mention this point, which brings me to the third question to be considered in this connection, *viz.* whether and, if so, how the tendency to excessive repair could be prevented? Seeing that—in my experience at least, and apparently also in Chiari's,—the difficulty is most frequently met with when operating upon the septum, the natural way out of it obviously is to altogether avoid, if possible, operating upon the septum in cases of nasal stenosis due to both crests or spurs of the septum and enlargement of the turbinates, and produce a better airway by partial resection of the lower, and, if need be, also of the middle turbinated bone. I certainly think that, if this be feasible, it is the most natural way out of the difficulty, although it must not be left out of consideration that sometimes when the lower turbinated bone has been reduced in size, a few months later, enlargement of the middle turbinated bone on the same side is met with, and although in other instances excessive repair takes place in the region of the lower turbinate itself. I may remind the Society of a case in point

<sup>1</sup> L. c., p. 591.

brought forward years ago by Dr. Hill under the title of "Regeneration of Tissue along Inferior Crest after Turbinotomy."<sup>1</sup>

In not a few instances, however, as in the imaginary illustration given before, the simple expedient of substituting resection of the turbinates for operations on the septum itself is out of the question, and the septum itself has to be dealt with. Assuming for a moment that after all there was something in the simple removal of septal enlargements with their covering mucous membrane by means of saw, trephine, or chisel, which caused violent reaction and excessive repair, the question arises whether anything could be done to combat them, or whether other forms of operation could be advantageously substituted. With regard to the first-named question, the rather surprising proposal has been recently made by Dr. Kreilshheimer, of Stuttgart,<sup>2</sup> to apply after operations performed with the saw or trephine the galvano-cautery at red heat to the wound, and to insufflate for a time xeroform upon it. It is true that the author recommends this procedure not so much with a view of preventing reaction as secondary hæmorrhages. But when I read his proposal I confess it looked to me rather like "driving out Satan by Beelzebub," seeing that to the reaction caused by the cutting operation, the irritative effect of the galvano-cautery was to be superadded. However, I did not mean to be deterred by theoretical considerations from giving the method a trial, and recently adopted it in a suitable case. The effect, however, was exactly what I had anticipated; reaction was very considerable, the wounded surface was found covered the day after the operation with a large slough, which completely occluded the nose, and after removal several times re-formed, and the duration of the after-treatment was not in the least curtailed. I may have been particularly unlucky, but the experience was hardly encouraging enough to repeat the experiment.

On the other hand, I think that a method recommended by Moritz Schmidt, and slightly modified by myself, although not actually preventing inflammatory reaction, and certainly not the excessive repair, will be found of material assistance in diminishing, at any rate, the former. This is the use after operation of a weak boracic acid and cocaine spray. Schmidt recommends this spray in the concentration of three grains of cocaine and half a drachm of boracic acid to six ounces of water. Instead of employing simple water as an excipient, I use a solution of adrenalin chloride 1:10,000, in which the cocaine and boracic acid are dissolved. The

<sup>1</sup> *Proceedings of Laryngol. Society of London*, Nov., 1895, and Jan., 1896; *JOURN. OF LARYNG., RHINOL. AND OTOL.*, vol. x, p. 29.

<sup>2</sup> *Fraenkel's Archiv für Laryngologie*, vol. xi, p. 339.



use of this solution three times daily for several days after cutting operations in the nose not inconsiderably diminishes, in my experience, the inflammatory reaction, and thereby helps in curtailing the duration of the after-treatment.

Still the question remains, whether not special forms of operation could be advantageously substituted for the simple removal of deformities of the nasal septum.

It is, of course, well known that the late Dr. Asch, of New York, has proposed an ingenious method of treating deviation of the septum. It consists "in making a crucial incision through the cartilaginous septum over the most prominent part of the deviation, breaking down by finger or forceps the basis of the segments thus formed, and in the insertion of a hollow splint." The method has met with much favour in America, but has for some reason or other, so far as I know, not gained a footing amongst intra-nasal operations in this country or on the continent of Europe. I have no personal experience of it, and I hope we shall hear something about it in our discussion from those who have gained some experience of their own. I may, however, remind the Society that it is much more calculated to deal with deviations than with crests or spurs, extending not only through the cartilage, but also through the bony part of the septum, the latter being the cases in which I have most frequently met with difficulties.

Dr. Krebs, when corresponding with me on the subject, spoke most highly of the operation originally introduced by Krieg,<sup>1</sup> and subsequently modified by Bönninghaus, consisting in total removal of the deviated parts of the cartilaginous and bony segments of the septum. Bönninghaus's modification consists in making on the convex side of the septum three incisions through the mucous membrane, the one parallel to the dorsum of the nose, the second along the mobile part of the septum, and the third corresponding to the floor of the nose. This is followed by resection of the mucous membrane of the convex side and of the cartilages and bones as far as they take part in the deviation, so that after the operation the septum consists only of the mucous membrane of the originally concave side.

I confess that when I read the detailed description of the method in Bönninghaus's original communication in *Fraenkel's Archiv*,<sup>2</sup> I thought that it was a big undertaking. As a matter of

<sup>1</sup> *Med. Correspondenzblatt des Württembergischen ärztlichen Landesvereins*, 1886, Nos. 26 and 27; and *Berliner klinische Wochenschrift*, 1889, Nos. 31 and 32.

<sup>2</sup> "Ueber die Beseitigung schwerer Verbiegungen," etc., *Fränkel's Archiv*, vol. ix, Heft 2, 1899, p. 269.

fact the author himself recommends it in very severe cases of septal deviation only. This will be easily understood when one learns that the operation, according to his own experience, requires from half an hour to two hours, and that in these cases he considers local anæsthesia infinitely preferable to general. Still, seeing the tedium of the after-treatment in so many cases in which these obstructions are dealt with by simple removal by means of cutting instruments, it appeared to me well worth consideration whether one should not resort to it, more particularly in view of the fact that its results are highly extolled by Krieg, Bönninghaus, and Krebs. However, whilst preparing these introductory remarks, I have within the last few days come across some observations by Hajek and Menzel in the very latest number of *Fraenkel's Archiv*,<sup>1</sup> which appear to me so noteworthy, and bear so much upon the question which we are discussing to-day, that I hope I shall be permitted to quote in full the first sentences of Hajek's paper in verbatim translation. They are as follows:

"Since the publication of the paper of Bönninghaus, in 1899, I have carried out Krieg's 'window-resection' in more than 100 cases. In 35 cases I was in a position to control the results of the operation for one to two years afterwards. I may be permitted to say at once, before entering upon questions of detail, that the results have been uniformly good, and that in my opinion similar good results, particularly in the case of severe deviation, are not obtained by any of the usual methods. I ought, it is true, to add at once that the method is complicated, technically difficult, and of long duration (half an hour to one and a half hours), and that it requires much patience on the part of the patient and of the operator. For this reason the value of the method must not be gauged by the results of the first few cases upon which anyone may operate, as quiet and circumspect working is only acquired after some time."

"To the difficulty just named hitherto the disadvantage was added of a large wounded surface on the convexity being left until cicatrization had taken place, and not rarely even afterwards formation of crusts became an incessant source of subjective troubles for the patient. One could not help feeling sometimes that the price which the patient had to pay in order to obtain in course of time a free passage through the nose was rather too costly."

Hajek then proceeds to explain that by the new modification

<sup>1</sup> "Bemerkungen zu der Krieg'schen Fensterresection," *Fränkel's Archiv*, vol. xv, Heft 1, pp. 45 and 48.

which he now introduces into the Krieg-Bönninghaus operation, and which consists in keeping the mucous membrane on the convex side intact, this disadvantage is entirely done away with. He admits, however, in opposition to the opinion of his assistant Dr. Menzel, who describes the modification in full in a paper which immediately follows Hajek's own communication in the new volume of the *Archiv*, that the technique of the Krieg-Bönninghaus operation is thereby not only *not* rendered any easier, but on the contrary made somewhat more difficult!

In view of the novelty of Hajek's suggestions, and the fact expressly emphasised by him that familiarity with this operation can only be gained by protracted experience, I of course refrain from expressing any opinion concerning it. It will have to be practically tested, and its value determined. A few facts, however, are, I think, tolerably clear from all that I have said so far, viz. (1) that it seems there are actual practical difficulties in dealing with many cases of nasal stenosis; (2) that no universally acknowledged method of operation apparently exists; and (3) that the difficulties of the after-treatment have been found to be considerable by a number of competent observers, independently of one another. I emphasise the last-named fact particularly for this reason, that I expect we shall hear in the discussion some expressions of surprise that anybody should have met with such difficulties as those described, coupled with the statement that the speakers had never encountered them. I should of course not doubt such statements, but would appeal to the lucky ones, who possess so enviable a record, to describe in full detail to their less fortunate brethren by the adoption of what method they had obtained their universally satisfactory results.

It remains for me only to discuss a few points common to most intra-nasal operations in which active after-treatment comes into question, whilst it need hardly be said that after some such operations, as, for instance, after removal of nasal polypi, no after-treatment whatever is required.

First and foremost the contingency of secondary hæmorrhage wants some consideration. Opinions vary very considerably, as only recently shown in the discussion which followed the reading of Dr. Krebs' paper, as to whether prophylactic plugging is necessary and desirable in all such cases. Personally I entirely agree, as will have been seen from my preceding remarks, with Dr. Krebs, that firm plugging should, if possible, be altogether avoided, as it does not with certainty prevent secondary hæmorrhage; as such hæmorrhages may and often do occur when the

tampon is removed on the day after the operation; as it may lead to infection of the adjacent parts; as the anæmia of the parts caused by the firm pressure is likely to interfere with the healing process; as it is anything but pleasant for the patient; and as I feel sure that the reactive swelling within the next few days after the removal of the tampon is greater than when this measure has been omitted. In operations, therefore, in which there is no particular reason to expect considerable secondary hæmorrhage, I nowadays use no plugging at all, and only give the patient the boracic-acid-cocaine-adrenalin spray, the composition of which I have indicated previously. If the wound caused by the operation should be at all extensive, I introduce a loose strip of cyanide gauze, saturated in peroxide of hydrogen (1 : 20 volumes), into the operated nostril, not with a view of effecting compression, but merely with a view of preventing subsequent hæmorrhage. [Krebs, instead of this, recommends the introduction of a small strip of gauze, or of a soft piece of absorbent cotton, saturated with adrenalin chloride (1 : 4000), which is to be retained for ten minutes only.] The patient ought of course to be directed to keep quiet, to rest on his return home for a while quietly with his head slightly raised, not to blow his nose violently, and if in spite of all bleeding occurs, to apply cold water compresses over his nose. The simple advice, originally given by Hueter and resuscitated by Krebs, that the patient should, when hæmorrhage occurs, inspire deeply with his mouth closed, and slightly expire with open mouth, will be found very useful in practice. It need, however, hardly be said that none of these measures affords an absolute guarantee against secondary hæmorrhage; that in some cases, particularly after operations on the posterior ends of the lower turbinates, application of more powerful styptics or of energetic plugging by means of Bellocq's cannula may be found indispensable, and that even after the application of the latter on removal of the tampon fresh hæmorrhage may occur. It will be very interesting to hear, in connection with this question of hæmorrhage, the experiences of members of the Society, whether my own impression is shared by others, viz. that since it has become the universal practice to apply solutions of adrenalin chloride to the mucous membrane of the nose previous to intra-nasal operations, secondary hæmorrhages have become more frequent, and somewhat more persistent than in previous times.

In the discussion which followed the reading of Dr. Krebs' paper in the German Otological Society on the points just men-



tioned, such different opinions as the following found expression :

Wolf (Frankfurt-am-Main) inquired whether after the application of adrenalin secondary hæmorrhages were not more abundant.

Thies (Leipzig) spoke against the use of preparations of adrenalin for styptic purposes.

Schech (Munich) condemned as strongly as Krebs had done general meddlesomeness in after-treatment, but would not like to be deprived of twenty-four hours' plugging.

Siebenmann (Bâle) warmly advocated the use of plugging in order to arrest hæmorrhage, but advised to use wet tampons.

Zarniko (Hamburg) agreed with the opener of the discussion in all essential points, and stated that in the course of the last ten years he had only twice found it necessary to plug; he also strongly recommended that patients about to undergo intra-nasal operations should abstain from the use of alcohol for several days previously.

Werner (Mannheim) considered short plugging required.

Körner (Rostock) thought one may do without plugging, but ought not to perform these operations in the out-patients' room.

Kronenberg (Solingen) emphasised the importance of after-treatment, and considers adrenalin very useful in operations in the upper parts of the nose.

Krebs himself, in summing up the discussion, referred to Bukofzer's experiences, from which he concluded that the fears as to more frequent and greater hæmorrhage after its use were unfounded. He himself laid more stress upon deep inspiration through the operated half of the nose than upon adrenalin applications. He had given up plugging for the reasons stated in his paper, already previously to the introduction of adrenalin.

From all this it is obvious that anything but unanimity prevails with regard to the use of adrenalin previous to, and the use of plugging after the operation.

As regards other general principles, we all, I think, will be agreed that meddlesomeness should be deprecated. Unfortunately, however, as I have tried to show, it is not always easy to say where meddlesomeness ends and neglect begins. If adhesions should, after all, unfortunately form, because one does not wish to disturb the normal course of healing, the operator is practically certain to be accused of neglect, and if he wishes to escape that Scylla, and sees his patient daily until all risk of the formation of adhesions is practically over, he is apt to fall into the Charybdis of being accused of making a big thing out of a small operation. I can quite understand the patient's feelings in this matter, and I

must confess that it seems to me an opprobrium to our branch that at a time when the biggest operations in other parts of the body are performed in one sitting, the period of after-treatment being of the briefest, it should be looked upon, to conclude from the writings of various rhinological authorities, as a self-understood matter, that the after-treatment of these simple operations should occupy a period of many weeks! What Krebs states about the principles to be followed in cases of *normal* healing of the wound will probably be endorsed by most specialists. He says, "The normally healing nasal wound is not to be considered as an object of treatment at all. The patient, who, as a rule, feels very little trouble after the operation itself, ought to be told that, as he has a wound in his nose, he should abstain from alcohol, and that he ought to avoid diving and swimming, as well as violent sniffing up, in order not to get pus through the tube into the middle ear. The nasal cavity itself, however, ought to be left alone. It is one of the most valid principles of surgery not to disturb wounds in their regular course, not even to probe them. Yet, how much is sinned against this direction in the nose! One sees that the patient is told to come, after, for instance, removal of parts of the lower turbinated bone, every day or every second day, when, with pain and difficulty, scabs are loosened with the probe and removed with the forceps; one sees washing out, touching, cauterising of granulations, burning, insufflations, etc. All this is usually superfluous, sometimes even disadvantageous to the healing of the wound. All that is necessary is to control whether the wound heals normally, particularly whether adhesions are forming, and whether the complaints of the patient have been removed by the operation. In many operations, particularly by means of the snare, it will be sufficient if the patient is seen once more, say after a fortnight. In other cases a somewhat more frequent control will be desirable. No universal formula can be given; I believe, however, in cases when the wound heals normally it will almost always be sufficient to examine the patient again on the first, seventh, fourteenth, and twenty-eighth day after operation. On these occasions one may remove dried crusts if they should be disagreeable, one may cauterise luxuriant granulations with solid nitrate of silver, and one may insufflate antiseptic powders—for instance, xeroform. That regular insufflation of disinfectant powders promotes the healing of the wound I have not been able to convince myself after long trials made with iodoform, aristol, airol, dermatol, xeroform, and menthol and boracic acid. When wounds have been made by means of the galvano-cautery, and in others in

which much secretion takes place, it may be required to apply to the introitus of the nose a mild ointment, such as menthol-vaseline (1 : 100), in order to prevent eczema. If there is a risk of the formation of adhesions a more active after-treatment is required. The patient should be seen daily or every second day. The nostril which is in danger is to be opened *pro tem.* by means of cocaine or adrenalin. The cicatricial bands, which have already formed, ought to be divided by cutting instruments (not by means of the probe, because through this more slowly healing wounds are produced), and a little piece of gutta-percha paper, disinfected by sublimate and subsequently rinsed in a salt solution, should be introduced into the nose. If the patient does not blow his nose such a strip will be retained for hours or even days in the same place. Some authors recommend an orthopædic after-treatment after operations for deviation of the septum. This after-treatment is superfluous when the deviated parts of the skeleton of the nose have been thoroughly removed; if this has not been done they usually result in failure."

So far Dr. Krebs. Whilst I entirely agree with him that in cases of normal healing of the wound, meddlesomeness is to be strongly deprecated, and whilst I find all the directions he gives with regard to this point admirable, I confess to my regret that in my experience the number of cases in which the wound does *not* heal normally is greater than one should expect from the brevity of his remarks on that point, and that I find neither in his paper, nor in the discussion which followed it, a panacea for the prevention of, or really effective dealing with, such difficulties as those which have induced me to propose this subject for discussion in our Society. I devoutly hope that in our discussion we shall hear of some method or methods through the adoption of which we may generally obtain in all cases effective curtailment of our after-treatment, and in many cases even better results from the operations than those realised by our present methods.

Sir FELIX SEMON read the following letter from Mr. Butlin, who was unable to be present.

"MY DEAR SIR FELIX SEMON.

"I am very sorry indeed that my attendance at a committee of the two Colleges will prevent me from being present at the Laryngological Society and taking part in the discussion on 'The After-treatment of Nasal Operations.' I did not know it was to come on so early in the session, but I suppose that the members are in such a hurry to tell their personal experience that they cannot wait until the new year.

"Had I been present, I meant to speak, rather of un-success than of

success. For, while I have had no difficulty at all in many cases, there have been other cases in which no kind of after-treatment has seemed to be attended with success. The more one does for some patients, the worse they seem to be. The difficulty of preventing adhesions, of maintaining the large passage one has made at the time of the operation, of raising the valleys and keeping them up, of lowering the hills and keeping them down, etc., is enough to choke off the youngest and most stout-hearted of nasal surgeons. There have been patients with nasal troubles on whom I have operated, whom I have afterwards heartily wished I had never seen.

"Of course, I hear of nasal surgeons who never meet with such cases as these. I can only congratulate them. But I can truthfully say that I have been consulted by patients of many of the best nasal surgeons in this town on account of the failure or very partial success of operations which they have undergone; and I have no doubt, on the other hand, that some of my failures have, in like manner, consulted some of my colleagues among the members of the Laryngological Society. Each one of these patients always seems to think that, had the operation been performed by some other surgeon than the man who did operate, he would have been a sound and happy man!

"Believe me, yours very truly,

HENRY T. BUTLIN."

DR. SCANES SPICER said that what chiefly struck him in the introductory paper, as well as in Mr. Butlin's letter, was the recognition of the very real difficulties, complications, and duration of the surgical treatment of nasal obstruction—conditions which removed nasal surgery from the category of minor surgery. This was a conclusion which the so-called advanced rhinologists had contended for years ago. He knew of no class of surgical case which demanded more tact, judgment, and skill than the management of nasal cases, and their conduct to a satisfactory termination, with a minimum amount of after-treatment (*i. e.* an indefinite multiplication of operations).

The significance of what he had to say lay in its application to the diminution and simplification of the so-called after-treatment of nasal operations, and the obtaining of the maximum amount of benefit possible in the minimum of time, rather than in the discussion of minor details.

His first point was that it was not wise to confine one's attention merely to the chief objective abnormality (*e. g.* spur, deflected septum, or "moricorn") and to operate on that, but to regard all the conditions in the individual case contributing to the obstruction, to consider the proportions in which they did so, to adopt a policy reasonably calculated to restore a permanently efficient, normal passage, and ensure a speedy recovery with a minimum of after-manipulation. He thought he must have encountered an unusually high proportion of complex and difficult cases, but he could affirm that of late years his cases were comparatively few in which the obstruction could be effectively dealt with casually in the consulting room with cocaine. To take an imaginary case, one might have in an obstruction case to consider spurs, bony deflections, cartilaginous dislocations, various enlargements of middle and inferior turbinated bodies, adenoids, and anterior nasal stenosis as all factors in the existing obstruction. One cannot envy the lot of the patient who has to give up months or years to the removal of such a combination by a succession of operations, or wonder if he become neurotic to the degree of insanity, and wander round from one specialist to another. He would therefore recommend, firstly, a complete diagnosis of, and secondly, a well-planned and



boldly-executed operation on, the various factors actually making the obstruction, as the best preventive of unduly protracted after-treatment.

This led to his second point, that in these cases he considered it advisable to give a general anæsthetic in order to permit such a combination to be dealt with at one *coup*. Sir Felix Semon seemed rather to prefer local anæsthesia as giving a better view of the field of operation in the nose, but he could assure the Society that he had done all his private obstruction operations for several years in the rhinological position, with as perfect a view as it was possible to have, and with the additional advantage of the patient's head being without difficulty maintained in the most convenient posture for just as long as was necessary. This, of course, necessitated the patient being in a nursing home, and he had found that very seldom in the last few years had his obstruction cases required to be in the home more than ten to eleven days, and were then usually sufficiently convalescent to pass out of the surgeon's hands. He had had more success since he had used Lake's rubber splints and similar sheets of soft rubber, which permitted gentle irrigation and some ventilation of the operated nasal cavity, without causing the irritation and hæmorrhage which so often attended the removal, and changing of the gauze-packings he had previously used.

He was very far from asserting that every case was cured of everything for ever and ever by this method, but there was no comparison between his results now and seventeen years ago, when he commenced dealing with these cases by piecemeal operations. Obstruction cases were now almost invariably successful if the patient would only tolerate a brief period of confinement and after-treatment, and a second operation for obstruction after a fortnight was most rare.

His third point was with reference to a condition which led to a repetition of operation, and which he did not think was as yet recognised as a cause of prolonged after-treatment, and that was a condition of anterior stenosis due to alar collapse and alar rigidity, the result of which was necessarily, on common physical principles, to lead to a condition of rarefaction of the air in the nasal chambers on inspiration through the nose. This diminution of air-pressure on the walls led to vascular turgescence and œdema, and it was not difficult to conceive that the removal of extra-vascular pressure from the constituent walls of the newly forming blood-vessels, combined with the positive force of capillary blood-pressure, led to the heaping-up of new cells, granulation masses, and thickenings, of which Sir Felix Semon had spoken.

As a practical outcome of these views he had for years aimed at restoring the physiological action of the muscles of the *alæ nasi* in respiration, and in most cases of complex nasal obstruction in which the *alæ* were collapsed, or rigid, or sunk in unduly on inspiration, he dilated with a screw dilator, to the fullest extent, the fibrous tissue of the *alæ*, taking care not to tear it. As a result of this, it was frequently seen that the normal expansile action of the *alæ* at once commenced, the air entered the nose normally, and the walls were subjected to normal variations of atmospheric pressure, instead of the relatively great suction which was experienced when there was alar stenosis. He believed the explanation to be that the muscles of the *alæ*, parietic from disuse, were unable to respond to the inspiratory impulse when the resistance offered by the rigid *alæ* was diminished. Subsequently he inserted smooth rubber rings in the vestibule with the idea of maintaining the mechanical dilatation, while the alar muscles regained their power and co-ordinated action with the other muscles of inspiration. These rings were inserted in front of Lake's splints.

Dr. STCLAIR THOMSON said, that as they were all given to err, it was pleasant to find that they erred sometimes in good company, and that their leaders followed the same mistaken footsteps that they themselves had trod. To put it concisely, the best way of avoiding the difficulties of after-treatment was to have a strict regard for the natural processes of repair, and to take the utmost precautions before operating with regard to the preparation of the patient, the surgeon, and the instruments. Unfortunately—or perhaps fortunately—they could not improve upon the natural processes of repair, and, in regard to the nose, certain points had to be borne in mind in addition to those in other parts of the body, namely, the great excretion of moisture from the surface of the nose, the work of the ciliated epithelium, and the secretion of mucus. Bearing this in mind, it would be seen that it was of the highest importance to avoid, if possible, any after-treatment, and particularly the use of powders and plugs. They had to remember that fresh blood was itself a germicide. Lister used to be fond of pointing to the “organising blood-clot” in his wounds. This blood-clot could be seen on the anterior end of the middle turbinal after amputation, and was frequently seen on the roof of the naso-pharynx after the adenoid operation. He had only noticed this in private practice, as hospital patients were so uncleanly in themselves and their surroundings. He believed he was right in saying that Sir Felix Semon himself used no after-treatment for the adenoid operation, and most of them would agree with this. He himself had tried to introduce it at a hospital where the sanitary arrangements were not perfect, but the nurses had begged him to have the children’s noses washed out at least once after the operation, as the smell was too foul for them to put up with: yet the operation itself was carried out as in private. As strict antiseptic measures in the nasal chambers were impossible, half-measures were irritating and useless. The attempt to make antiseptic lotions or powders in the nose have any germicidal action was futile; they might neutralise the toxins, but that was all, for the Schneiderian membrane would tolerate no active bactericide. Personally, he so seldom used the galvano-cautery nowadays, that his experience of the after-reaction was comparatively small. He believed more in the use of cold steel in the form of knife, scissors, punch forceps, or wire snare. Asch’s operation he had performed only a few times and in selected cases, but with good results. He confirmed the use of Lake’s soft rubber splints as being vastly superior to the hard vulcanite tubes introduced by Meyer in America. He could give some personal experience of the operation on the septum which had been mentioned. He had himself seen a patient under local anæsthesia have the septum resected and sit perfectly still for one hour and a quarter. This was in Germany. He did not think it would be done in this country. He was anxious to see if he could do the same operation under a general anæsthetic, but his experience was not yet sufficiently extensive to entitle him to refer to it before the Society. This method of submucous resection was, in his opinion, the most promising of septum operations. He could not altogether agree with Dr. Spicer as to the necessity of doing one large operation on the nose: he thought, with Lermoyez, that nasal operations should be done “in fractions.” If surgical interference were limited to one side at a time, the reaction was much less than if both sides were attempted at one sitting.

Mr. CRESSWELL BABER said, that the chief practical point to consider was the after-treatment of ordinary cases of operation for nasal obstruction in which portions of the septum or turbinated bones had been removed, or the galvanic cautery had been applied. From some years’

experience he was convinced that the less done to the nose after operation the better. The plan he adopted in these cases was to do nothing to the nose whatever except placing a light plug of antiseptic wool, dusted on the first occasion with iodoform, into the vestibule. This was frequently changed. After a week he examined the nose, applying cocaine, and removed any slough with forceps, and if there were any chance of adhesions he passed a fine probe through the cavity. This he repeated once a week if there was any likelihood of adhesions, or he instructed the patient to pass for himself a thin bone spatula, about nine-sixteenths of an inch in width, right through the nasal cavity, and let him do it two or three times a week. He had used these spatulae for the last seven years in a good many cases, and found them very satisfactory for preventing adhesions. He thought in only two circumstances was it necessary to leave a foreign body in the nasal cavity after operation: (1) in excessive hæmorrhage, which was very rare in his experience; (2) in cases in which a deflected septum had been divided and pushed into a more normal position, a tube or other apparatus might be necessary to keep it in place. As regards washing out the nose, he did not do this until some weeks afterwards if there were much discharge. Granulations might be touched with silver nitrate. He found, that in sawing off a ridge from the bony septum, in order to get a satisfactory result, it was generally necessary to remove the small inferior turbinated body on the deflected side at the same time. A very important point had been raised by Dr. Spicer, and that was to examine very carefully the state of the vestibule before doing any operation in the nasal cavity for obstruction, so that disappointment might not ensue. Sir Felix Semon had expressed his astonishment that a septum should sometimes take five weeks to heal. In his (the speaker's) experience it generally took that time or more, and one had to watch the case until it was quite healed. As regards anæsthetics, he thought general anæsthesia was necessary in a good many cases, and it gave good results. One could see exactly what one was doing by having the head slightly raised and working with the aid of a reflector.

Dr. BRONNER referred to the question raised by Sir Felix Semon as to the application of cocaine. He formerly used a spray, but now he employed powdered cocaine, eucaine, and desiccated supra-renal extract, and applied it on wet cotton wound round a probe; in this way he was able to localise very much better. He was a great advocate of the galvano-cautery, and used it nearly every day of the week, and he had had very few bad results. He used a cautery with a very thick, broad point, and burnt away the tissue to the extent he considered necessary. He regarded as a most unsurgical procedure, the method of sticking a thin point into the mucous membrane, as this often set up severe inflammation of the turbinal. As regards the after-treatment, he prescribed a 4 per cent. solution of bicarbonate of soda, and told the patient to syringe the nose frequently. This relieved the pain and prevented the formation of crusts and sloughing. Should there be sloughing, he removed the crusts and applied trichloracetic acid. He always used a trephine for removing spurs. He did not consider it remarkable to get a swelling of the cartilage after trephining; as in all other parts of the body, any operation on cartilage was followed by local thickening, which lasted for some weeks. With reference to the septal operation, he generally did that suggested by Moure, and he found it fairly successful. He generally used a general anæsthetic. He had tried the wonderful operations which had been described, and found them exceedingly difficult, requiring a lot of time, and the patients would not have them.



In spite of what had been said, he thought that it was dangerous to give an anæsthetic when the patient was in a sitting position. As regards hæmorrhage, he always applied powdered ferropyrine, and he had never had a serious hæmorrhage, except in one case, where the patient told him after the operation that he was a "bleeder." He always told the patient to syringe with very hot water if there were any hæmorrhage. He never used a plug, but put in a small piece of cotton wool, to be changed every fifteen minutes. He gave most of his patients an antiseptic mouth-wash, and in his district, where he had the poorest to treat, he found it necessary to lay emphasis on the importance of having a clean mouth, as a septic mouth very readily gave rise to suppuration in nasal operations. He found that it was better for the patients to come frequently and have a little done at a time than to have the total causes of obstruction removed at one sitting by a big and long operation under a general anæsthetic. There was always a certain amount of danger in a big operation, and many fatal cases had occurred. In Moure's operation for deviation of the septum, of course, a general anæsthetic was necessary; but when the nasal obstruction was due to other causes a general anæsthetic was unnecessary, dangerous, and uncalled for, except the patient were very nervous. He had seen many cases, some with emphysematous chests, weak hearts, and who had been advised to undergo an extensive operation, whom he had cured in a few sittings with a local anæsthetic.

Mr. WAGGETT thought that in the hands of a skilled anæsthetist nothing was better than a general anæsthetic with the patient sitting up. On the other hand, local anæsthesia made it possible to divide an operation into separate stages, which was often desirable. The discomfort and inflammatory reaction sometimes following galvano-cauterisation were much reduced if the parts were swabbed with glycerine and carbolic acid. As regards adrenalin, he agreed with Sir Felix Semon that it increased post-operative reaction in most cases, and that its use induced a tendency to hæmorrhage. He was, however, bound to say that, although he often used adrenalin, he had not seen any troublesome hæmorrhage for some considerable time, ever since he had adopted the routine use of peroxide of hydrogen after all cutting operations of any magnitude in the nose. His practice was to have a mixture of the peroxide (vols. 10) with an equal quantity of tepid water pumped into the nose every three hours during the first two days after operation. Not only did this prevent hæmorrhage and keep the nose clear of blood-clots, but where it was desired to keep a splint in the nose for several days, or where a gauze packing had been employed, these could be retained in the nose without fear of sepsis. He generally used a cocaine nasal spray for the purpose, passing the small terminal of the instrument two inches or more into the nose above and below the splint, or into the interstices of the packing. As to the permanent thickening mentioned by Sir Felix Semon as occurring after some operations on the septum, he believed its degree was more or less proportional to the length of time taken in healing. After the removal of a spur by the electric trephine or the saw the wound should not be retarded in its healing by the ischæmia which resulted from tight plugging, nor irritated by loose plugging. Moure's operation for deflected septum had this advantage, that the cuts were placed above and below the part which needed to be pressed upon by the splint. He was in the habit of using Lake's splint after this operation.

Mr. HUNTER TOD testified to the excellence of the Krieg-Bönningshaus operation. During the last two years he had adopted this method in the treatment of cases of nasal obstruction due to deviation of the



septum, and had operated on some thirty to forty cases. His chief reason for preferring this operation to any other was the simplicity of the after-treatment. Intra-nasal splints were not required, and continual daily dressings were avoided. Plugging the nose with gauze during the first twenty-four hours after the operation to prevent hæmorrhage, and the daily employment, for three weeks, of a simple nose wash followed by the use of an oily spray, to prevent the formation of crusts, was all that was required. He advocated the use of a general anæsthetic, the patient being in the usual recumbent position. The nose should be plugged, just before the anæsthetic was administered, with gauze soaked in a freshly-prepared 5 per cent. solution of cocaine and supra-renal extract in order to prevent hæmorrhage during the operation. The only difficulty in the operation was the avoidance of an accidental perforation of the septum. He incised the mucous membrane as far forward as possible, on the side of the obstruction, and then cut through the cartilage carefully, separating it with a probe from the mucous membrane of the opposite side. As much of the cartilage, and even of the vomer and plate of the ethmoid, as was necessary was now removed by means of a special punch forceps which Meyer and Meltzer had made for him. The mucous membrane on the side of the obstruction was removed with the cartilage, and only a single layer of mucous membrane left to represent the septum. This gradually stiffened, and afterwards formed a straight septum. The wound healed within a month. The result was usually very satisfactory. It was sometimes necessary to remove, on the non-obstructed side, the anterior ends of the middle and even of the inferior turbinates, if their mucous membrane were hypertrophied, to prevent obstruction on this side, owing to the straightening of the septum. He agreed with Sir Felix Semon that the use of supra-renal extract increased the liability to hæmorrhage, usually beginning two or three hours after the operation, and for this reason he always plugged the nose for twenty-four hours after the operation.

Dr. HERBERT TILLEY thought that all rhinologists in this country would agree that in the great majority of cases where an intra-nasal operation was performed for the removal of a septal spur or crest, or for the correction of a deviated septum, a general anæsthetic was advisable. The additional risk was slight, and was more than counterbalanced by the fact that the surgeon need not regard the feelings of his patient, and by a careful arrangement of pillows he could have the patient's head in any convenient position that he might desire. He thought the galvano-cautery had lost favour for two reasons:—(1) Its effect was not permanent. A patient might obtain relief from nasal obstruction lasting for many months, but generally the condition returned again, and further intervention was necessary. In a bad case of hypertrophic rhinitis the removal of the anterior fourth of the inferior turbinal body gave great and permanent relief, and the time involved in treatment was less. The operation could easily be done under "gas" anæsthesia. The inflammatory reaction referred to by Sir Felix Semon was, the speaker thought, much minimised if some glycerine of carbolic acid, or even pure carbolic acid, were applied to the eschar immediately after the application of the cautery. It further acted as an antiseptic and local anæsthetic. He confessed some surprise at the frequency with which Sir Felix Semon had met with adhesions following the use of the galvano-cautery, or intra-nasal operations. Of course it might be replied that a surgeon might fail to see many such cases because his failures passed into the hands of other rhinologists. That might be true, but even then we should all occasionally meet with the failures of others; but the speaker

could only recall two cases of adhesions (giving rise to symptoms of obstruction) which had come under his notice during the past year, and in both these instances the cautery had been used by unpractised hands. He thought that an adhesion, whether it occurred after the use of the galvano-cautery or a cutting operation, indicated that the surgeon had wounded the opposing areas. In the removal of a septal spur it was a very easy thing to abrade the mucous membrane of the opposite turbinal body, and this unconsciously; and an adhesion would almost certainly result if a suitable plug were not inserted, or, better still, a little more than necessary of the obstruction should be removed in order to ensure a wider interval between the wounded parts. He thought a flat saw was less calculated to injure neighbouring parts than the circle of a trephine, which must necessarily occupy much more room in the nose. Normal mucous membrane would never unite with a granulating surface. In the case of the cautery point, if it be impossible to burn the redundant tissue of the turbinal without scorching the neighbouring mucous membrane of the septum, it is highly probable that cauterisation would be of no permanent value in so narrow a nose, and therefore an anterior turbinectomy should be carried out. He agreed with those who had found adrenalin predispose to a freer secondary hæmorrhage. His own plan was to apply a 10 per cent. solution of cocaine to the parts to be removed, say five minutes before the general anæsthetic was administered. Having removed the obstruction, bleeding in ordinary amount was not checked, and he rarely inserted any plug at all. If it were necessary, however, he used strips of ribbon gauze and left them *in situ* for forty-eight hours; if removed before this, the hæmorrhage was often as free as in the first instance. The liquor opii sedativus was often a valuable drug for quieting the circulation in nervous patients where constant oozing of blood from the nose was a source of anxiety. With regard to the overgrowth of new tissue upon the site of a former obstruction, the speaker thought that this would become less of a bugbear if it were made a golden rule, in operating for nasal obstruction (especially septal outgrowth), always to remove a good deal more than seemed necessary at the time of operation. He had never regretted removing too much, but often that he had been content at the time of operation to ensure free respiration. Far better make a perforation through the septum, than that removal of the obstruction should be followed by that excessive growth of formative tissue so well described by the introducer of the discussion. In cases of deviated septum Asch's operation had given him excellent results. To keep the parts in position he always used Lake's splints, removing them every day for the purpose of irrigating the nasal cavities with a warm saline lotion. In this, as in nearly all intra-nasal and sinus operations, oxygenated water was an excellent styptic and cleansing agent.

Dr. WATSON WILLIAMS, alluding to the question raised by Dr. Tilley as to the use of the galvano-cautery, said that when one had a case of nasal stenosis, one looked to see whether the stenosis, great or small, was due to something which could be readily removed by a minor procedure, or whether its removal required a rather complicated operation. Some of the most marked cases of stenosis were those which could be most easily removed; where the galvano-cautery was employed for the middle and inferior turbinates there was a possible danger in the formation of adhesions which gave considerable trouble in the after-treatment. To prevent such accidents he had had a speculum made with long ivory blades which were adjustable so that either blade could be made an inch to an inch and a half longer than the other. This enabled one when

putting in the speculum on either side to expose the turbinate body for the application of the cautery, whilst the septum was protected. Since using this instrument he had found it a great convenience, as it avoided a good deal of the after-trouble, which was formerly so frequent, inasmuch as the burning of the mucosa which arose was sometimes due not to actual touching of the opposite side, but to the scorching from the proximity of the cauterising point by reflected heat. There was always a difficulty in preventing adhesions when two raw surfaces occurred in such close proximity. With the more extensive operations he had been at a loss sometimes whether or not he should plug. If one used a plug one had to remove it soon, for, in spite of all antiseptic precautions, it became exceedingly foul in twenty-four to forty-eight hours, and the changing of plugs was always liable to set up fresh hæmorrhage. On the other hand, if one did not plug one was liable to be summoned at any moment in consequence of severe secondary hæmorrhage. As far as his experience went, he was bound to say that the tendency to hæmorrhage was increased by the use of adrenalin. Personally, he had found nothing so useful for the prevention of hæmorrhage as peroxide of hydrogen, which he generally used in the after-treatment of these cases. It was also most useful in the removal of plugs, because it loosened the blood-clots, and enabled one to remove the plugs by gentle means, whereas if force were used the hæmorrhage which one so desired to avoid was almost sure to occur. He considered the operation for deviated septa described by Mr. Tod eminently satisfactory in suitable cases; but it was most desirable that if this operation were to be done the septum should not be previously cauterised or submitted to other methods of treatment which might render the perichondrium more than normally adherent to the underlying cartilage.

Dr. DUNDAS GRANT said that intra-nasal surgery was full of surprises. In cases which seemed most unfavourable the results were often unexpectedly brilliant, but it occasionally happened that in the most straightforward-looking ones the local or general disturbance was most serious. Intra-nasal operations were a source of constant anxiety. He was in accord with the view expressed by Brieger at the Florence Congress, namely, that as much as possible of the mucous membrane should be left to exercise its microbicidal action, and therefore as little as possible should be done at a time. He was much gratified to find Sir Felix Semon and Prof. Chiari in favour of the anterior inferior turbinectomy which he had advocated in his introduction to the discussion on the Uses of Turbinotomy as applied to the Inferior Turbinate Body (May 12th, 1897), and which he frequently practised in preference to operating on the septum. The anxiety attending nasal operations depended upon the possibilities of hæmorrhage, local or general sepsis, the formation of adhesions, insufficient result from removal of too little tissue, or persistent crust formation and dry pharynx from the removal of too much. Lastly, the occurrence of coincidental disease, contagious or otherwise. In regard to hæmorrhage, he avoided plugging if by any means possible. At the most he applied the end of a strip of gauze to the raw surface until the patient reached home. By preference he did even minor intra-nasal operations in a nursing home, or sent the patient to one immediately from his consulting-room for one or two nights. The gauze was there removed at once, any bleeding being allowed to take place over a basin while the patient breathed vigorously in and out through his nares. He only reapplied the gauze if the hæmorrhage was very excessive. The avoidance of plugging was the first step towards the prevention of sepsis, but the observance of the rules of aseptic surgery



as relating to the sterilisation of hands and instruments, cotton wool, cocaine solutions, etc., was of course of the greatest importance.

In galvano-cauterisation of the inferior turbinated body he thought he had been fortunate in avoiding the formation of adhesions by practising this exactly in the manner he had described at Ipswich. He applied cocaine on a pledget of non-absorbent wool, leaving it *in situ* for about fifteen minutes, then carefully swabbed away all moisture by means of absorbent wool, so as to avoid scalding the opposing surfaces. He next introduced the galvano-cautery point under the mucous membrane as deep as the periosteum, and withdrew it while still at a red heat. This submucous galvano-caustic puncture could be repeated, if required, at several spots. The punctured spots were then painted with deliquescent trichloroacetic acid (which appeared to produce an antiseptic seal): the whole turbinated body was then brushed with a 10 or 15 per cent. solution of antipyrin (which kept it in a state of contraction for several hours), and lastly a little aristol or eucrophen was insufflated (as calculated to help in forming an antiseptic scab and a barrier between the opposing surfaces which it seemed quite gratuitous to dispense with). The patient was ordered, as a rule, a few doses of bromide of potassium, with a little salicylate of sodium as a calmative comparable to the sedative solution of opium already referred to, and devoid of certain of its objections. On two occasions his anxiety to ensure a sufficient result as quickly as possible had led him to practise this submucous cauterisation with exceptional thoroughness, and the exfoliation of a thin sequestrum from the surface of the inferior turbinated body had resulted. He now considered it necessary to exercise great discretion. He had, like Sir Felix Semon, seen adhesions in cases in which operations had been performed by other practitioners, but he had also seen them present in several cases in which no operation of any kind whatever had been performed. In some patients the nasal mucous membrane was abnormally sensitive, and he had seen a case in which very alarming nervous disturbance appeared to have been occasioned by a simple though thorough examination of the nasal cavity by means of a long-bladed speculum. The disturbance seemed analogous to that occasionally produced by the passage of a urethral bougie. In the particular instance the examination was, however, followed by a railway journey and a good deal of social exertion. The question of how much to remove in any given case was often a difficult one, but especially in cases of deflection of the anterior part of the cartilaginous septum with concomitant thickening. It was most undesirable to produce a perforation, and it was better to err in the direction of removing too little. This could be easily corrected, but a perforation could not be closed. It was undoubted, however, that in many cases of perforation there was little or no resulting discomfort, and the restoration of nasal patency afforded great relief. He did not advocate complete turbinectomy if other measures were sufficient, but in some narrow noses the results of this were most brilliant, and the discomfort, if any, from crusts, of short duration. The subjects of nasal operation were very liable to accidental infections, such as those of scarlet fever and influenza. These usually manifested themselves with abnormal rapidity, probably not later than forty-eight hours after the operation. This was the period of anxiety. He practised and advocated Moure's operation for deflection of the cartilaginous septum. He had used Moure's hollow metallic splint, and also the straightening transfixion needle, but the strong recommendation he had heard of Lake's india-rubber splint was irresistible. In general, he advocated the removal of as little nasal tissue at a time as was compatible with the restoration of



reasonable patency, the avoidance of travelling or exertion after operation, the reduction of nasal tamponing to a minimum, and as far as possible the avoidance of exposure to infectious disorders.

Dr. PEGLER said the objects he had in view in nasal operations and their after-treatment were the prevention of hæmorrhage, primary and secondary; the avoidance of septic infection and consequent abscess of the septum, septic tonsillitis, or aural inflammation; the absence of adhesion formation, and the establishment and maintenance of an efficient air-passage. If secondary hæmorrhage were, as usually stated, due to sepsis in the wound, it followed that keeping the latter as aseptic as possible would be a good prophylaxis against it, and this he had found to be the case in practice. As regarded primary hæmorrhage, he had been fairly satisfied with the bloodless method as carried out by the use of some one of the adrenalin solutions. Not having had secondary hæmorrhage after its employment so far, his experience scarcely accorded with that of previous speakers. He had had much more hæmorrhage in his early work than in his later, and attributed this to improved methods of operating, especial precautions being taken against leaving untidy surfaces on septum or turbinals, or shreds of mucous membrane. He made very free use of iodoform insufflation, and avoided packing, at any rate for more than a few hours after operating, but of course there were circumstances in which a gauze plug must be employed, and it might require to remain for twelve hours or more. In very many cases the india-rubber splint served the purpose of both plug and splint, which was a great recommendation, and provided the splint was not too thick, and was suitably shaped, he had never had occasion to complain of ill effects from anæmia of adjacent parts. It was tensive pain that he dreaded, and not anæmia of the tissues, for the copious mucus that was invariably poured round and about the splint protected them. Hence healing went on freely in presence of a well-adapted splint, and the pressure effects upon shreds and unevennesses in the operated parts was a distinct advantage. The speaker said he had entered so fully into the subject of Lake's turbinal operation and india-rubber splints in his Ipswich paper that it was unnecessary for him to go over the ground again at the present discussion, but he was pleased that so many authorities who had spoken were now adopting these methods. Anterior turbinotomy had largely superseded the galvano-cautery in his hands, save only in roomy passages rendered slightly insufficient by erectile tumefaction: in tight chambers, and where there was bony enlargement of the turbinals, the cautery should be rigorously excluded. The explanation of adventitious tissue formation after cauterising by scorching, owing to the close approximation of the walls, was an excellent one, and this evil consequence should be sufficient to deter the operator from employing the cautery in such cases. The speaker fully concurred with Sir Felix Semon in his valuable remarks on the mucous turgescence, and apparent change for the worse in regard to space, after recent operation, say upon the septum, in a narrow fossa. For his own part, when he found this condition about to supervene he did not hesitate to sacrifice whatever might be needed of the inferior turbinal, and perhaps the middle, till the "right of way" was sufficient for good drainage, general safety, and comfortable respiration. It was sometimes convenient or unavoidable to allow the adhesions to form, and remove these and whatever was necessary of the adjacent wall at the same time or on some subsequent occasion, taking care to prevent re-formation by judicious use of the splint. A system of *sawing out*, when a septal outgrowth had to be got rid of, instead of merely cutting on the flat, was a great help in securing against subsequent

trouble. Dr. Pegler said he would like to have heard more from Sir Felix Semon about the work and writings of British rhinologists than he had done, but an operation that had come to us from Bordeaux and was of extreme value had had no mention except by subsequent speakers. He alluded to Moure's operation for deflection of the septum, and was much gratified to find his own endeavours to popularise this method had met with response. He trusted he might take some credit for these results, and he should welcome suggestions from other rhinologists for still further improvements in these often difficult cases. Subsequent experience confirmed his belief that Lake's india rubber was the best form of splint after doing a "Moure," and he was glad the simple cutting pliers (septotome) he had devised were finding favour, but he should recommend the instrument makers to no longer render the blades detachable, as the advantage of this was not at all apparent. We were probably all in agreement with Sir Felix that true regeneration of the inferior turbinal after removal was quite impossible, but soft cushions of mucous membrane projecting from the septum, in fact from either wall (including the inferior turbinal), required much patience in treatment for lasting eradication. This was not the case, however, with lymphoid excrescences, which he had found much less liable to recurrence. Only that morning he had seen a patient from whom two large pedunculated lymphoid masses had been removed from the posterior extremity of the vomer seven years ago, and he was glad to see that the merest traces—gelatinous-looking thickenings—on either side now remained. Dr. Pegler said he would conclude by calling attention to a hæmorrhagic ulceration which very rarely supervened a considerable time after operation upon inferior turbinals that had been affected by œdematous and hypertrophic conditions. He had described such a case which had given rise to much difficulty, but ultimately yielded to iodine in Mandl's solution of the strength of one drachm of pure iodine to the ounce, locally applied.

Dr. DONELAN thought that synechiæ could be certainly avoided only by ensuring adequate separation at the time of operation, either by the removal of sufficient tissue, the use of suitable splints, or by both. Measures taken at a later period to avoid threatening adhesions were usually unsatisfactory in their results. A further advantage of Lake's splint was its somewhat absorbent surface. It could be sterilised and then impregnated with medicaments calculated to hasten healing. The troubles so often arising after septal operations were very often due to an endeavour to force the anatomical peculiarities of the patient to adapt themselves to some Procrustean procedure. This was not the occasion to enter upon a discussion of the merits of various septal operations, but, though those mentioned in the course of the debate were all excellent, in certain cases there were many examples of deformity,—as, for instance, where the extreme convexity formed, as it were, a basal angle of a pyramid near the floor of the nose, in which specially devised measures would alone be successful. The success of the after-treatment of these operations must always depend not only on the manipulative skill of the operator, but on the judgment and mechanical ingenuity with which he devised modes of attack suited to individual peculiarities.

Dr. FURNESS POTTER said that he had had a not inconsiderable experience of the use of adrenalin, but had not encountered any trouble from hæmorrhage following its application. He admitted that he had been in the habit of plugging with gauze, and usually removed the plug in from six to twenty-four hours. If an hour (or half an hour) previous to removal, the gauze were thoroughly moistened with a spray of

hydrogen peroxide, and then carefully withdrawn, bleeding would be avoided. With reference to anæsthesia, from his own experience he found it more satisfactory in a great number of cases to operate with the patient sitting in a chair and with the aid of cocaine. He had seen a number of operations under general anæsthesia, the patient being in a sitting position; ether could not be conveniently administered after the commencement of the operation, and continuance of the anæsthesia with chloroform in the upright position, in his opinion, was by no means devoid of anxiety. He certainly thought that such operations as removal of septal spurs and inferior turbinectomies (which formed a large proportion of the operations under discussion) could be performed most satisfactorily without a general anæsthetic, except in the case of extremely nervous, excitable persons.

Dr. WILLIAM HILL felicitated Sir Felix Semon on being more in sympathy with earnest rhinologists than on recent occasions when he had made "some observations" on nasal surgery. The opener of the discussion had referred to an instructive case, which he (the speaker) had many years ago brought before the Society, and spoke of it as one of "Regeneration of the Turbinated Bone." Now that was certainly a misquotation of title, and doubtless due to quoting from memory. He could not remember at the moment the exact words used, whether "turbinal body" or "turbinal tissue," but he had just consulted his neighbour, who, like himself, had had similar cases, and was familiar with the literature of the subject, and Dr. Tilley had informed him that the term "tissue" had really been employed. At all events he felt sure he had not gone so far as to assert that a whole turbinal bone had been regenerated, but he had undoubtedly claimed that there had been an obvious reproduction of a potential turbinal body, which included mucous membrane, glands, and erectile tissue, and apparently some extra formation of bone. In this case he later removed some of the softer part of the regenerated body, and it was found by Dr. Pegler to consist, on microscopic examination, of the ordinary turbinal vascular tissue covered by mucous membrane. There might be pathological objections to the use of the term "regeneration" in this relation, but he had been unable to find another word which more appropriately represented the apparent sequence of events in this case. He was not, of course, prepared to loosely use the word regeneration in reference to every tumefaction recurring at the site of removal of obstructing structures in the nose. When, however, a patient was suffering from hyperplastic enlargements in the nose, he thought that on removal of the obstructing structures (whether turbinal, or septal hyperplasia, or polypi), there was often subsequently evidenced an undoubted proclivity to recurrence quite apart from the temporary, though often prolonged tumefaction and excessive granulation immediately following and resulting from operative interference. The cause of this tendency to reproduction or recurrence must be sought in the conditions leading to the original obstructive lesions which had not been counteracted, and which, in our present state of knowledge, were not always discoverable. Sinus disease was, of course, occasionally present as a causative, and therefore removable factor, but often the ætiology was absolutely obscure.

In order to reduce excessive tumefaction and to prevent adhesions occurring immediately after operation, the speaker strongly recommended pressure by splints and bougies rather than by medicated gauze, as the latter often caused pain and bleeding on removal; on the whole there was nothing like rubber, and he generally, though not exclusively, used Lake's rubber splints. After Moure's operation (performed with Pegler's



shears) he had found Asch's celluloid conical splint of great utility when inserted into the narrower nostril.

For keeping down tumefaction after the removal of the larger splints or bougies, *i. e.* a day or two after major operation on the septum, he had found it of much advantage subsequent to syringing, to dilate the inferior meatus with a laminaria tent for half an hour previous to the introduction of a rubber, soft tin, or celluloid splint. Tents should be made wedge-shaped with a sharp knife in order to facilitate their introduction. Thin splints only could be tolerated at first, *i. e.* after removal of the large operative splint, but later they should give place to thicker ones. Such splints should be inserted for a time daily for several days and even weeks, according to the nature of the case.

Adrenalin Dr. Hill had been led practically to discard in after-treatment for quite another reason, however, than the debatable one of whether it caused secondary hæmorrhage, for he had found it one of the worst irritants that he had ever applied to the nasal mucosa; and he felt strongly that its routine use in hyperæsthetic and inflammatory conditions was contra-indicated. For the same reason cauterisation, whether electric or chemical, found no place in his after-treatment; nor, again, did strong antiseptic lotions; and as weak ones were useful only, or at all events principally on account of their mechanical action, he preferred to perform frequent lavage with water, previously boiled, and trust to that and to the germicidal action of the nasal mucosa. He did not wish to speak too dogmatically on this point, but, as a rule, in addition to lavage with sterilised water he only used antiseptic powders in cases where there was fœtor present before operation, and again where the ethmoidal cells had been opened. The discussion had been not only interesting but suggestive.

Sir FELIX SEMON, in conclusion, expressed his gratification that so interesting and vivid a discussion had taken place. He did not intend to reply to some remarks, which had fallen from one or two speakers, and which obviously were outside the pale of the present discussion, but would confine his own observations strictly to the question of the after-treatment of intra-nasal operations.

In the first place he was anxious to confess that he had not been able to verify before the meeting took place the exact title of Dr. Hill's communication, and had quoted from memory. The error would be corrected before his manuscript went to press.

The discussion had beyond doubt revealed the fact that on many essential points concerning the daily routine of practice, the views of the various experts, who had spoken, were widely at variance, and that, so far as he could judge, no absolute unanimity prevailed in any single topic that had been touched upon.

There were, however, five points, at any rate, concerning which it had been made quite clear that a large majority of the speakers were agreed on. The first was the employment of general, in preference to local, anæsthesia in this class of operations. With regard to this point the remarkable consensus of opinion, which had been elicited by the discussion—and of the existence of which rhinological literature gave no clue whatever—had been very instructive. Although some members of the Society had very properly not hesitated to express theoretical fears of the employment of a general anæsthetic when the patient was placed for a considerable length of time in a sitting posture, he felt bound to say that the practical experience of so many other members seemed, in his opinion, to outweigh these fears; and the fact that the operations in question could with advantage be performed under a general anæsthetic,



appeared to him a practical gain, which in itself justified the selection of the topic as a suitable subject for a general discussion.

The second point was that the tendency to secondary hæmorrhage seemed increased by the use of adrenalin. He had been pleased to find that so many members of the Society had from personal experience corroborated what he had said of the greater frequency and persistence of secondary hæmorrhages after the use of adrenalin. True, these hæmorrhages fortunately seemed but rarely to be of a serious character, but the fact that their occurrence had been signalled by a number of independent observers surely removed them from the sphere of mere individual impressions. He would certainly not draw from this the inference that the use of adrenalin should be given up altogether in this class of operations, but undoubtedly it was a further useful result of the discussion, that operators, who wished to avail themselves of the drug in order to perform practically bloodless operations, should hereafter be prepared to find that this advantage might possibly have to be paid for by increased tendency to secondary hæmorrhage.

Thirdly, the usefulness of Mr. Lake's india-rubber splints had been so universally attested to, that if in future he had to resort to plugging at all, he would certainly employ them on the next occasion.

Fourthly, Moure's method of rectification of septal deformities had been so highly spoken of by all those who had availed themselves of it, that this would certainly induce those who, like himself, had no practical experience of it, to give this form of operation a fair trial.

Finally, he was glad to hear that the occurrence of excessive repair after operations on the septum had been admitted by so many observers. From the paucity of remarks on this topic in rhinological literature, he had hardly expected that his own experience had been shared by so many others. The explanation given by Dr. Seanes Spicer was certainly an ingenious one, although he could not say that it was convincing at first sight.

Whilst with regard to the five points just named, a tolerable consensus of opinion seemed to exist, a considerable amount of dissension had become evident on other points touched upon in the discussion.

There was first of all the important question of plugging after operation. On that point the opinion of the Society seemed as divided as had been that of the German Society of Otologists. They had heard from some members of the Society that they *always* plugged, from others that they *never* did so, from others again that they sometimes did, and sometimes didn't. At the same time what was described as "plugging" evidently had a rather different meaning in the minds of various operators. In fact, it was a case of "*quot homines, tot sententiæ*." Personally, he must repeat, as stated in his introductory remarks, that whilst post-operative interference of *any* kind should—if possible—be altogether avoided, it seemed to him quite impossible to lay down a hard and fast rule applicable to all cases.

Then there was the question of how much should, could, and ought to be done in one and the same sitting. On that point they had heard diametrically opposed views from operators of great experience. It was difficult to decide when doctors disagreed. Further experience would probably settle that question, which had a more than academic interest. He would not refer to the greater risk of sepsis if, in a locality where admittedly no strict antisepsis could be secured, a wound extending through the whole length of the nasal and naso-pharyngeal passages were produced, such as Dr. Seanes Spicer, from his remarks, apparently did not hesitate to create. But apart from that risk, surely the fact of *both* the

opposite mucous surfaces being deprived of their covering epithelium by extensive operations, involving the turbinates as well as the septum, predisposed towards the formation of adhesions. And in connection with that fact he wished to say in reply to Dr. Tilley's expression of surprise, viz. that he (the speaker) should have so often met with adhesions, following the use of the galvano-cautery or intra-nasal operations, that these adhesions had not been produced by *him*, but had occurred in the practice of other operators, the patients in question having subsequently consulted him with a view to being relieved, if possible, of the continued obstruction.

Then, again, there was great discrepancy with regard to the sub-mucous use of the galvano-cautery. Dr. Dundas Grant had evidently found it useful, whilst Dr. Bronner regarded it as an unsurgical procedure.

Numerous other points could be enumerated in which diametrically opposed views had been expressed, but this was hardly necessary, as the discussion had shown throughout that the selection of the subject had been a judicious and a timely one. This discussion would certainly be studied in this country and abroad with the greatest interest by all specialists, and the various points raised would receive greater attention than they had so far in rhinological text-books. This had been his aim when he proposed this subject for discussion, and he hoped it was fair to sum up the result of the discussion by saying that this aim had been fully achieved.

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## Abstracts.

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### PHARYNX.

**Birkett, H. S.**—*A Case of Tuberculosis of the Pharynx.* "Montreal Medical Journal," July, 1903.

The patient was a boy, aged fifteen years. Enormous masses, consisting of soft granulation tissue resembling frog-spawn, filled the lateral walls of the pharynx. The upper surface of the palate and walls of the naso-pharynx were infiltrated in a similar manner, rendering nasal respiration impossible. The mucous membrane of the surrounding structures was exceedingly pale.

The family history evinced a strong tubercular tendency from the father's side, and the patient occupied a room in which one of his uncles died of tuberculosis. Still, his lungs were normal and the expectoration negative. Temperature was likewise normal.

The question presented itself, Was the condition inherited syphilis, tuberculosis, or malignant disease? The first was negatived by the absence of all corroborative symptoms; the last by the rarity of occurrence at his age, the indolent type of the granulation tissue, and the absence of infiltration into the surrounding tissue.

Under ether the masses were removed. Pathological examination proved the presence of giant-cells as well as a few tubercle bacilli. The use of tuberculin showed the typical reaction. Curetting, lactic acid, and X rays were subsequently used in the treatment. Although not cured at the time of writing, much improvement had taken place.

Price-Brown.

## TRACHEA.

**Boulay, Maurice and Gasne**—*Two Cases of Subglottic Foreign Bodies in Children.* "Annales de Maladies de l'oreille, etc.," September, 1903.

The first case was one in which a child had swallowed a piece of cork, the other a fish bone. The X rays gave no assistance, and, although tracheotomy gave relief, any attempt to remove the tube was followed by symptoms of suffocation.

The authors used a cannula with a window on its convex surface, through which they were able to pass sounds of varying sizes; in this way the foreign bodies were dislodged from the mucous membrane and, by manipulation and retraction, were engaged in the opening of the cannula and removed. The authors point out the significance of being able to diagnose the nature of tracheal obstructions by the use of sounds used in this manner.

Anthony McCall.

## THYROID.

**K. A. Krause and C. Hartog**—*Post-typhoid Strumitis with the Demonstration of Typhoid Bacilli in the Pus.* "Berlin klin. Woch.," August 17, 1903.

The case narrated was one of a man, aged twenty-three, the subject from childhood of a small goitre. He became affected with typhoid fever, which ran a rather severe course but ultimately subsided. After subsidence of the pyrexia the goitre became tense and swollen, and produced pressure-symptoms. Fluctuation was made out, and on exploration odourless, creamy, brownish-yellow pus was obtained, from which a pure culture of typhoid bacilli was got. A small punctured incision was made, and drainage carried out. Recovery rapidly ensued, and in place of the former swelling there remained merely a small scar from the incision. The writer refers to a work by Tavel on the Etiology of Strumitis (Sallmann, Bâle, 1892).

Dundas Grant.

**Bingham, G. A.**—*The Operative Treatment of Goitre.* "Canadian Practitioner and Review," August, 1903.

In selecting cases for operation the writer lays down several important rules. In anæmic girls at the age of puberty rapidly growing goitres will sometimes disappear gradually, with or without treatment, and hence should not be surgically interfered with except under urgent conditions. He believes also that no goitre should be operated upon for purely æsthetic reasons; and as the operation is not a light one, it should not be undertaken by a novice. All benign cases should first be submitted to a course of medical treatment, unless danger from pressure seriously threatens; and in support of this idea Kocher's experience at Berne is quoted, 90 per cent. of his cases of goitre being so much relieved by medical treatment that operation was not required.

In summing up, the writer says that in all cases of solid or cystic goitre of a benign nature operation should only be done for the relief of definite symptoms. In malignant disease of the thyroid, extirpation after early diagnosis is the only hope. In advanced cases of malignant

disease removal should only be partial, to relieve pressure and to render future tracheotomy possible. In exophthalmic goitre the operation is justifiable in some cases to relieve pressure symptoms, due care being taken in the administration of the anæsthetic.

With regard to operation, his plan is to remove the whole of the part diseased when only a part of the thyroid is involved—for instance, the isthmus or one lobe. When both lobes are affected he removes the larger lobe and the isthmus, finding from experience that the smaller lobe gradually shrinks and the serious symptoms are all relieved.

With regard to mortality, out of a record of thirty-three cases operated upon, while there were a number of deaths from various causes, there was not one directly due to the operation. *Price-Brown.*

## EAR.

**Eulenstein** (Frankfurt-on-Maine).—*On Hæmorrhage from Erosion of the Brain Sinuses in Suppuration of the Temporal Bones.* "Arch. of Otol.," vol. xxxii, No. 5.

Eulenstein describes a case in which ten days after operation for mastoiditis in acute suppurative otitis an oozing of blood took place from under the dressing. Rises of temperature indicated toxæmia, but the plugs could not be removed on account of the furious venous hæmorrhage. The internal jugular vein was ligatured; the transverse portion of the lateral sinus was exposed by means of a burr to a sufficient extent for pressure to be applied. It was then possible to remove the existing septic plugs of gauze and replace them by fresh ones. Four days later, when the tampon was changed, there was a gush of venous blood, but less than before, and more readily controllable. Recovery ultimately took place.

References are given to seventeen other cases, of which thirteen occurred in the course of chronic suppuration, four of acute, and one not stated. *Dundas Grant.*

**Rudloff** (Wiesbaden).—*On the Course of the Sigmoid Sinus in the Temporal Bone of the Child.* "Zeitschrift für Ohrenheilkunde," Band xlv, Heft 3.

Rudloff was left to investigate the course of the sigmoid sinus owing to his having been misled by applying to a child of two years old the localising points described by Macewen, which appear to be true in the adult only. "Macewen's line" runs from the deepest part of the parietal notch of the temporal bone down to the tip of the mastoid process, and indicates in the adult the middle of the channel of the sinus, though sometimes its posterior margin, and on the left side occasionally the anterior one. Rudloff measured the distance from Macewen's line horizontally backwards to the vertical part of the sinus at two levels—namely, that of the root of the zygoma and that of the parieto-mastoid suture. The results were as follows:

1. At the level of the root of the zygomatic process:

1. In the new-born infant ... ..	6 millimetres.
2. In the child one year old ... ..	6 ..
3. In the child two to three years old	10 ..
4. In the child six years old ... ..	3 ..
5. In the child nine to ten years old	7 ..



## II. At the height of the parieto-mastoid suture :

1. In the new-born infant ... ..	7 millimetres.
2. In the child one year old ... ..	10 "
3. In the child two to three years old	17 "
4. In the child six years old... ..	6 "
5. In the child nine to ten years old	16 "

The distance is greater in proportion as the mastoid process is wide.

Dundas Grant.

**Stein, Otto J.** (Chicago).—*A Discussion on the Differential Diagnosis and the Treatment of Osteo-sclerosis of the Mastoid Process.* "Arch. of Otol.," vol. xxxii, No. 3.

This paper contains a strong plea for superficial trephining of the bone in the mastoid region in case of long-continued pain attributable to chronic osteo-sclerosis of the mastoid. (Hartmann in his "Hand-book" looks upon "mastoid neuralgia" as synonymous with mastoid osteo-sclerosis. It is also one of the indications given by Schwartze for the mastoid operation.—D. G.) The condition is usually the result of old-standing, perhaps exhausted, inflammation of the mastoid mucous membrane. The diagnosis from otalgia arising from internal or middle ear or antrum trouble, hysteria, neurasthenia, malingering, and reflex neuralgia from non-aural causes, is discussed.

Dundas Grant.

**Mathewson, G. H.**—*Extreme Hoarseness due to Pressure of a Foreign Body in the External Auditory Meatus.* "Canada Medical Record," March, 1903.

A young man, aged nineteen, complained of hoarseness and deafness. On examination, one ear was found to be filled with inspissated cerumen. As this was removed, a piece of graphite  $\frac{1}{8}$  inch long from a carpenter's pencil was discovered deeply within the meatus. Its removal was followed by the immediate recovery of the voice.

The writer believed the aphonia to be reflex, either from irritation of the pneumogastric through Arnold's nerve in the meatus, or else indirectly from pressure through the membrana tympani against the tympanic plexus of Jacobson's nerve on the promontory, and thence to the pneumogastric.

Price-Brown.

### BOOKS RECEIVED.

**Professor Gherardo Ferreri.** *La Profilassi Sociale delle Prime vie Respiratorie.* Rome—Milan: Albrighi, Segati e C. 1904.

**Richard Lake, F.R.C.S.** *Handbook of Diseases of the Ear.* London: Baillière, Tindall, and Cox. 1903.

*Transactions of the Twenty-fifth Annual Meeting of the American Laryngological Association held at Washington, May 12, 13, and 14, 1903.* New York: Rooney and Otter Printing Co. 1903.

*Verhandlungen der Laryngologischen Gesellschaft zu Berlin.* Band XIII, Jan. 10, 1902, bis Dec. 5, 1902. Berlin, 1903. druck von L. Schumacher.

THE  
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EDITORIALS.

**INFORMAL DEMONSTRATION BY DR. HAJEK IN LONDON.**

AN informal friendly gathering of a large number of members of our special societies was recently held, on the invitation of one of the vice-presidents of the Laryngological Society of London, for the purpose of meeting Dr. Hajek, the well-known rhinologist of Vienna. The proceedings centred in an interesting demonstration by the guest of the evening, but there were others of a mildly convivial character. The circumstances permitted of unfettered inquiries on the part of those present, the distinguished Austrian specialist replying to these with the utmost cordiality. He was apparently highly gratified at the interest displayed in the department of the specialty with which he has so closely identified himself.

He devoted himself mainly to an exposition of his views with regard to the diagnosis and treatment of chronic suppuration in the sphenoidal sinus. He started at the outset by pointing out how favourably the sphenoidal cell was situated for our investigation; it was neither above nor below nor to one side, but straight in front of us in the line of vision. The diagnosis had, in a sense, become more difficult within the last two years, not from decrease of knowledge, but from increase. Two years ago, if pus was seen in the olfactory slit, and more especially if it were observed in the orifice of the sphenoidal sinus, or was washed out from it, a diagnosis was made of sphenoidal sinns suppuration. Dr. Hajek

pointed out, however, that even when pus could be washed out of the sinus the diagnosis was not complete, and that there was much greater probability of it arising from the posterior ethmoidal cell. The diagnosis could only be made certain by temporary plugging of the orifice of the sphenoidal sinus. After a thorough cleansing a small plug of gauze was applied to this orifice, and left there for twenty-four hours. At the termination of this period the examination had to be repeated, when, if any pus was on the anterior surface of this plug, it came not from the sphenoidal but from the posterior ethmoidal cell. If, on the other hand, after removing the plug, pus was demonstrated in the sphenoid, then it had been secreted there, and the diagnosis of sphenoidal sinusitis was complete. He stated that when the head was thrown back the pus ran with ease from the posterior ethmoidal cells into the sphenoidal. (The reporter of these proceedings has been struck by the large proportion of cases in which, on the *post-mortem* table, he has found a muco-purulent secretion in the sphenoidal cell. He was disposed to attribute this to frequent latent suppuration in this cell, but there is great probability that in many instances the appearance is the result of the gravitation of secretions from the posterior ethmoidal into the sphenoidal while the dead body is in the recumbent position.)

By means of beautifully cut and preserved horizontal sections through the structures of the nose, including the posterior ethmoidal labyrinth and the sphenoidal cell, Dr. Hajek demonstrated the relative position of these cavities. Thus he showed that the largest portion of the sphenoidal cell lay immediately behind the posterior ethmoid, the one being separated from the other by a very narrow *recessus spheno-ethmoidalis*, and consequently the part of the sphenoidal cell accessible, which could be opened without interfering with the ethmoidal labyrinth, was extremely small, and indeed insufficient to admit of there being so large an opening produced as to prevent subsequent contraction. For the efficient opening of the sphenoidal sinus, therefore, it is necessary to open the posterior ethmoidal cells as well. For this purpose, after the turbinal has, if necessary, been freely removed, a hook is introduced through the ostium of the sphenoidal cell. The point of the hook is then turned directly outwards, and when drawn forwards necessarily breaks down the anterior wall of the sphenoidal and the posterior wall of the posterior ethmoidal cell. The cells are thus thrown into one, and the opening is enlarged by punching away the loose tabs and dissepiments by means of a suitable forceps such as he exhibited. This simultaneous opening of the posterior eth-

moidal cell is of all the more importance because in some cases it spreads backwards and intrudes between the sphenoidal cell and the bony wall of the cavernous sinus, which is often extremely thin, cribriform, and almost dehiscant. In such circumstances the opening of the sphenoidal cell alone would be quite insufficient to remove the danger of infection of the cavernous sinus if the posterior ethmoidal labyrinth was suppurating.

In the after-treatment of these cases he scrupulously avoided scraping out of the whole mucous membrane. There were often the islands of disease on the surface of the mucous membrane, and to these alone did he direct his active treatment, namely, curetting and the application of caustics. He alluded to the extraordinary degree of œdema of the mucous lining, otherwise an extremely thin membrane, which could be induced by the application of caustics, the swelling being sometimes so great as to fill the cavity and bulge forwards so as to simulate a polypus.

He made a short reference to his treatment of disease of the antrum of Highmore, and he was now in favour of sewing up the wound in the canine fossa and bringing the end of the packing out through a large opening in the inferior meatus of the nose.

Dr. Hajek's prelection was anything but dry. He greatly amused his hearers by his quaint description of his appreciation of the value of alcohol in connection with medical congresses. "I do not go," he said, "to the meetings of the congresses. All the cases that are reported there are quite successful. This is a characteristic of our specialty. Instead of going to the meetings I take a little walk. *But I go to the dinners*, and after the dinner, when the alcohol begins to produce its beautiful loosening effect, the specialists will come up to me and describe to me cases of theirs which have not been quite successful, and ask me if I have cases like that. I tell them that I have, and ask them why they have not described those cases in the meetings, to which they reply that they could not do that, as someone else would stand up and say it was only they that had such bad cases. In this way the effect of the alcohol is most valuable."

There is many a true word spoken in jest, and it is greatly to be desired that at meetings of congresses and societies members should be encouraged to report their mishaps as well as their successes. Many can testify to the fact that this encouragement is not always given, as it should be, and that many are, therefore, constrained to confine to their own consciences some of the most valuable lessons of their lives. Those presiding cannot too often insist upon respect being paid to the feelings of those who bring forward these



instructive experiences, and to put down with a firm hand the captious criticism to which they are sometimes exposed.

Such informal meetings as the one that took place in honour of Dr. Hajek might with advantage be more frequently repeated, as an agreeable variant both from the ceremonious and costly "at homes" to which people are apt to go for creature comforts rather than for mental improvement, and also from the too serious society meetings where the free exchange of views is apt to be somewhat hampered by the rules of debate which are necessary for the orderly carrying out of the business of a set discussion.

### THE ACCESSORY CAVITIES OF THE NOSE IN RELATION TO OZÆNA.

THIS subject is dealt with in a peculiarly objective manner by Dr. Hajek, of Vienna, in the second edition of his work on the "Pathology and Therapeutics of Inflammatory Diseases of the Accessory Cavities of the Nose,"<sup>1</sup> which has recently been published. Dr. Hajek is of the opinion that previous writers who have not noted the association between these two conditions have failed to do so owing to their having overlooked the disease of the sinuses, an error into which he confesses himself to have fallen from the same reason. Suppuration in the sinuses may be unrecognised from it not being thought of, and even when thought of it is often very difficult to discover. He is, however, opposed to the views of those who think that in every case of ozæna the origin is to be found in the suppuration of one or more of the accessory cavities.

A series of twelve cases carefully examined and analysed is presented in this important chapter of Dr. Hajek's book, and a review of the observations and results may be found worthy of the attention of our readers. In four the "ozæna" depended on suppuration in the anterior ethmoidal cells, in three on simultaneous involvement of the maxillary antrum and the anterior ethmoidal labyrinth, in two on suppuration in the interstices of naso-pharyngeal adenoid vegetations, in two on diffuse suppurative catarrh of the nasal mucous membrane, in one each on posterior ethmoidal and sphenoidal suppuration respectively. (One of the cases occurs twice in this enumeration, as on the right side the antrum and anterior ethmoid labyrinth were involved, and the left side was

<sup>1</sup> Published by Franz Deuticke, Leipzig and Vienna, 1903.

the seat of diffuse suppuration without evidence of involvement of the accessory cavities.)

The results of treatment based on the local diagnosis appear entirely to confirm the opinion given as to the site, and the results are such as no conscientious rhinologist can afford to ignore. The detailed notes of the cases give instructive particulars with regard to the investigation of the ethmoidal cells. The influence of what may be called a "chronic suppurative adenoiditis" is well worthy of notice. As the operator who finds the nose already too patent may hesitate before still further widening the upper air-passages by the removal of the hypertrophied pharyngeal tonsil, the results in Dr. Hajek's cases may remove all scruple in regard to this question. We may also recall a very interesting therapeutical consideration bearing upon the same point, which was brought before our notice about ten years ago by a French author who came to the conclusion that there was required a certain proportion between the width of the nasal cavity and that of the naso-pharynx; when the former was too great in proportion to the latter, he believed that stasis with the resulting dryness and decomposition of secretion took place, and that this was to be relieved by increasing the sectional area of the naso-pharynx by the removal of the adenoids. The theoretical considerations may not be convincing to everyone, but the practice founded upon them seems to find confirmation in Dr. Hajek's results. Though the series of cases is not a very long one, it is interesting to note the absence of tendency on the part of suppuration in the frontal sinus to give rise to any condition to which the term "ozæna" may be applied. We need hardly say that in these observations we find the explanation of appearances which, apart from them, appear somewhat incompatible, namely, hypertrophy of the middle turbinated bodies combined with atrophy of the inferior ones. A number of years ago we remember Dr. Greville Macdonald drawing attention to the frequent and almost constant presence of enlargement of the middle turbinated bodies in cases of ozæna; naturally it is one of the outward and visible signs of disease of the ethmoidal labyrinth, which is present in a large majority of the cases. Even in those cases which are attributed to purulent rhinitis in childhood Dr. Hajek believes that the focus in some accessory cavity has been overlooked, and in support of this quotes two cases in which he had himself been able to ascertain with certainty the focus of secretion, namely, in the ethmoid cells of the middle meatus.

It will be seen, therefore, that Hajek is in general in agreement with Michel and Grünwald, but he differs from them in holding that the causal relationship between the focal suppuration and the

collective symptoms of ozæna is not absolutely proved; he even errs—if at all—on the side of caution, and few will hesitate in accepting his statement “that the recognition of a focal secretion in advanced cases of ozæna is an important step in advance, but, nevertheless, the last factor in recognition of the ætiology of ozæna has not yet been discovered.” With regard to the origin of the secretion, he has arrived at an important generalisation that “it is never from the atrophic areas that the secretion takes place, but, on the contrary, always from parts which present a slightly hypertrophic and turgid appearance.”

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## SOCIETIES' PROCEEDINGS.

### THE ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

*Meeting held November 23, 1903.*

*The President, Mr. ARTHUR UNDERWOOD, in the Chair.*

#### **SOME OBSERVATIONS UPON SUPPURATION OF THE MAXIL-LARY ANTRUM; WITH SPECIAL REFERENCE TO DIAGNOSIS AND TREATMENT.**

BY HERBERT TILLEY, M.D., B.S.(LOND.), F.R.C.S.ENG.;

Surgeon to the Hospital for Diseases of the Throat, Nose, and Ear, Golden Square.

AFTER some preliminary remarks, Dr. Tilley stated that he would base his remarks upon a series of cases which had come under his notice during the interval between January 1, 1902, and November, 1903. During this period he had seen 64 cases of antral suppuration in private practice, and 18 of his hospital patients had been admitted for the radical operation, making a total of 82 cases. Of the 64 patients occurring in private practice, 27 were treated by alveolar puncture, 3 were acute cases, 20 were only seen in consultation, and either refused treatment or the latter was carried out by the patient's own medical attendant, 19 were submitted to radical operation. If these figures be added up, it will be noticed that the total comes to 69; that is, because of the 27 patients treated by the alveolar method without complete success, 5 elected to have the radical operation performed, and hence they were counted twice over.

The 18 cases admitted into the hospital were each of them operated on by the radical method. In 19 of the 82 patients the frontal and ethmoidal cells were also in a state of chronic suppuration, and these sinuses were radically dealt with, either simultaneously with the antrum or at a former or subsequent operation. In 4 patients the sphenoidal sinuses as well as the afore-mentioned accessory nasal cavities were also discharging pus. Of the 64 cases, the antral suppuration was bilateral in 12.

ANATOMY AND DEVELOPMENT.—Reference was made to the small size of the antrum at birth and the rapid increase of the sinus with advancing age, brought about by a hollowing out of the cancellous tissue existing between the orbit and the alveolar margin of the superior maxilla. Attention was also drawn to the depression and recesses which exist upon the internal walls of the antrum and the ease with which diseased mucous membrane lying in these situations might escape the curette of the surgeon.

By means of a series of excellent diagrams other anatomical relations of practical value to the nasal surgeon were demonstrated, *e. g.*, the proximity of the roots of the second bicuspid and molar teeth to the floor of the antrum, the equal level of the floor of the nasal cavity with that of the maxillary sinus, the position of the natural "ostium" and that of accessory "ostia" when they existed.

Particular attention was drawn to two anatomical relations which have an important bearing upon the treatment of accessory sinus suppuration. The first was the relation of the maxillary antrum to the frontal sinus. It would be noticed that the infundibulum terminates at or in the antral opening and that a fold of mucous membrane extends upwards from the foramen, forming a pocket, at the bottom of which is the antral foramen, the fold referred to being on the inner side.

As a result from this a discharge issuing from the frontal sinus would tend to fill the antrum before the latter began to overflow into the nose, and hence the lower sinus might act as a reservoir for discharges from the ethmoidal cells or frontal sinus without being itself primarily diseased. Hence, the fact that an antrum contains pus does not necessarily mean that it is produced there, for it may be merely acting as a reservoir rather than as a generator of the discharge. The following case illustrated these facts:

Mr. F——, aged fifty-four, had for five years suffered from a purulent nasal discharge, associated with nasal obstruction due to large polypi within the nasal cavities. On several occasions the polypi were removed, but the discharge continued as freely as before, and



it was ascertained that it proceeded from the frontal, ethmoidal, sphenoidal and antral sinuses. Both maxillary antra were drained by the alveolar method, and for two years were irrigated twice daily with antiseptic lotions. The purulent discharge, although lessened in amount and robbed of its fœtor, continued to flow, and the patient used on an average fifty handkerchiefs a week. He finally decided to submit to radical operations upon the different sinuses, with a view to the discharge being entirely cured.

Last June Dr. Herbert Tilley operated upon both frontal sinuses, and was somewhat astonished to find that it was not necessary to further treat the antra, for from the day on which the operation upon the higher sinuses had been performed not a drop of pus had been syringed from either antrum.

The second anatomical feature to which he drew their attention was that occasionally some of the lower anterior ethmoidal cells spread outwards in the bony floor of the orbit, and infection may spread from these into the antrum. It was of the utmost importance in the radical operation for the cure of chronic suppuration to see that these cells (if they existed) were not overlooked; for if left behind in a septic condition they would reinfect the antral cavity.

CAUSES OF ANTRAL SUPPURATION.—It was now universally accepted that antral suppuration might be of nasal or dental origin. Influenza had proved a prolific parent of suppuration within the nasal accessory sinuses, while in a smaller number of cases erysipelas, scarlet fever, measles, diphtheria, typhoid and pneumonia had been definitely proved to be the cause of the infection. A certain amount of catarrh of the nasal mucosa was frequently present during the course of these diseases, and since the nasal mucous membrane was continuous with that lining the accessory cavities, the latter were very prone to become affected by simple extension of the catarrhal process. Hence one could easily understand that an acute nasal catarrh might be followed by a similar condition, with retention of the secretions in the accessory sinuses, a condition possibly accounting for some of the frontal discomfort experienced during an acute "cold in the head." If, owing to inefficient drainage, such secretions be retained under tension, an increase of inflammation might result, and should certain micro-organisms gain access to the suitable medium thus provided, suppuration might occur in the antrum, in a single ethmoidal cell, in a frontal sinus, or in any combination of these cavities.

If we supposed an ethmoidal cell to be affected and to have become the focus of suppuration, it was at least possible that the

contained pus might find its way into the maxillary antrum, or even into a frontal sinus, and *vice versa*. So that—given an acute or chronic catarrhal condition of the mucous membrane acting as a predisposing cause—the exciting cause of empyema might be organisms associated with influenza, syphilitic nasal lesions, insanitary surroundings, or convalescence from long illnesses, especially acute infectious diseases; while a great many cases of antral suppuration were due to septic infection starting from the root of a diseased tooth, especially the second bicuspid or one of the molar teeth.

Traumatism would account for a small number of antral empyemata, and in this matter both dental and nasal surgeons were occasionally to blame. He recalled instances where symptoms had followed immediately upon unskilful attempts to extract a tooth, and on the other hand after the careless use of the galvano-cautery in the nose, or even after the removal of a septal spur.

It was difficult to say what proportion of cases were of dental as opposed to nasal origin, for as a general rule patients gave a very indefinite history of the onset of their symptoms.

He had been struck by the constancy with which diseased teeth had been present upon the same side as the suppurating antrum—in eighty-one out of the eighty-two cases upon which his paper was based.

He had only met with one patient (a girl aged twelve) in whom the teeth were quite healthy. In this child the frontal, ethmoidal and antral sinuses were all suppurating, and the process started during convalescence from a large wound upon the front of the neck caused by a scald. This wound had suppurated freely, and it was more than probable that infection gained entry from it to the nasal cavities. Radical operations had been carried out on all the cavities with almost complete success.

The interesting question arose, "How far must a tooth be diseased in order to render it a source of infection to the overlying antrum?" Of course when a dead septic tooth was present, or there was suppuration at the root-apex or in the alveolar socket, it was easy to understand how infection might gain direct entry to the antrum, but the difficulty arose in establishing any relationship between minor degrees of dental disease and co-existent antral suppuration.

He presumed that a small area of caries in the dental crown of a live tooth could scarcely affect the corresponding antrum, and yet this was the only evidence of dental disease in several of his cases. Could such a small amount of disease set up a certain degree of

irritability of the mucous membrane of the antrum in the neighbourhood of the root of that tooth—an increased vulnerability which rendered it more liable to infection from the nose? Or was the constant association of antrum disease and dental caries only a coincidence, and to be explained by the fact that in this country there were very few people beyond the age of puberty whose teeth were absolutely sound, and therefore the chances of any one individual suffering from chronic antral suppuration (relatively a much rarer condition) having unhealthy teeth on the same side were very great?

In connection with the question it was interesting to note the view held by Grünwald. He<sup>1</sup> says: "I would especially emphasise the fact that a tooth must not be considered harmless because the socket is not diseased. Infection creeps along the lymphatics of healthy bone, and a focus of infection in the crown of a tooth is by no means to be despised, for even if an empyema of the antrum be due to another cause, yet disease of the crown of a tooth is calculated to maintain such a state of irritation in the mucous membrane as may frustrate all attempts at cure."

SYMPTOMS.—A brief reference was then made to the symptoms, diagnosis, and treatment of acute antral suppuration. With regard to the symptoms of chronic maxillary empyema it was pointed out how often they were of a misleading nature, *e.g.*, "an offensive discharge from the nose," a frequent recurring "disagreeable taste," "increasing difficulty in breathing through the nose," due to the formation of polypi, "chronic nasal catarrh," "headache," "brow ache," feelings of "weight over the forehead" or "round the eyes." In other cases the digestion was impaired owing to more or less severe forms of gastritis, brought about by the swallowing of pus into the stomach; while absorption of the purulent material into the general circulation often had a very subtle effect on the nervous system, inducing a lack of energy and general condition of depression, which might perhaps be best exemplified by the following passage taken from a patient's letter two months after the antrum had been drained. She wrote, "Before the operation I was always depressed, and often cried several times a day; if I walked a mile I was tired out, but now I can walk eight miles without any fatigue whatever," etc.

If the dental symptoms were associated with a "discharge of offensive matter from the nose," coupled with a "sickly taste" in the mouth, and at the same time there were frequent attacks of supra-orbital headache—possibly of greater severity during the

<sup>1</sup> "Nasal Suppuration" (Grünwald), 2nd Edit., 1900, p. 9.

earlier hours of the day,—especially if these symptoms were associated with any of those already mentioned, in such circumstances one might reasonably entertain a strong suspicion that the antrum was diseased, either alone or in combination with the other accessory sinuses.

DIAGNOSIS.—This was only discussed in so far as it could interest the dental surgeon, and the intranasal signs and symptoms of antral suppuration were not dwelt upon.

The two following tests, however, could be adopted :

1. Ask the patient to blow his nose thoroughly upon the affected side until no pus is expelled. Then let him rest for from three to five minutes with the suspected antrum uppermost, during which time the pus will probably flow into the nose. On again blowing the nostril, the yellow and often offensive discharge may once more be seen upon the handkerchief.

2. Let the patient place the feet close together and endeavour to touch his toes without bending the knees. If this position be maintained for from one to two minutes, considerable congestion of the head will be caused, and aching of the inflamed tooth or diseased antrum, or corresponding frontal region, may be induced.

Transillumination of the antrum by means of a 6 to 12 volt electric lamp placed within the mouth was referred to as a very valuable method of confirming suspicions which had been aroused by other symptoms presented by the case.

With reference to this test, it was pointed out that if there be pus within the antrum it will be noticed that there is no infra-orbital "light crescent" upon the diseased side, or a much less definite one than on the healthy side. This infra-orbital opacity is due, in Dr. Tilley's opinion, to a chronic inflammatory process in the bony walls of the antrum, because it was present not only immediately after the pus had been washed out, but sometimes it might be seen forty-eight hours after the radical operation had been performed, and when the sinus cavity was without any membranous lining at all. Unfortunately the test was not always reliable, because a similar opacity might be noted in healthy but thick-walled antra, and of course its value was diminished when both sinuses were diseased.

Other conditions might also modify its reliability, and the surgeon should never forget that the presence of a unilateral denture, or of a cotton-wool plug in the corresponding nasal cavity, might produce marked opacity in the antrum of the corresponding side.

Exploration of the antrum was the only absolutely reliable



means of determining the presence or absence of pus in that cavity.

Formerly it was the custom to perforate the alveolus under nitrous oxide anæsthesia and if necessary to remove a tooth for the purpose. Should the exploration demonstrate the absence of pus, the patient will possibly have lost a useful tooth, to say nothing of the inconvenience of the anæsthetic and of—not improbably—a considerable amount of after-pain and discomfort in the jaw.

All these disadvantages could be obviated by making a puncture within the nose. This little operation was practically painless. It required no general anæsthetic, it might be done in the consulting room, and its evidence was absolutely reliable.

A small dossil of wool is moistened with a 10 per cent. solution of cocaine and applied by means of a probe to the inner wall of the antrum underneath the anterior end of the inferior turbinal bone. In a few moments a (Lichtwitz's) fine trochar and cannula are passed outwards, backwards, and slightly upwards through the inner antral wall. The trochar is withdrawn, leaving the cannula in position, and to its proximal end is fitted a rubber tube through which some warm boracic or normal saline solution can be injected. If there be any pus in the sinus it is at once demonstrated by this simple, bloodless, and absolutely reliable method. Curiously enough, in a number of cases in which Dr. Tilley used it, immediately the antrum had been perforated the patient at once complained of aching in one of the diseased teeth upon the same side. This was very valuable information, for it at once suggested which one of perhaps several unsound teeth was the real cause of the trouble.

TREATMENT.—*Acute Cases.*—The painful symptoms rapidly subsided if free drainage were provided, either through a tooth-socket in the alveolus or through a large opening in the inferior meatus of the nose. If the antrum were irrigated daily with some mild antiseptic for ten days to a fortnight, the suppuration would cease and the opening in the alveolus might be allowed to close. Very occasionally one irrigation would suffice, and the insertion of a drainage-tube would be unnecessary. It was a moot question whether any tube were necessary in acute cases or whether they would not do better if only a moderately sized alveolar perforation were made. Personally he preferred a tube, because one could be sure of efficient drainage until it was certain that suppuration had ceased; whereas, should the opening close before the discharge had quite disappeared, it might be necessary to open up the alveolar perforation for a second time.

With regard to chronic cases, in the treatment of every case the first desideratum was that the teeth be attended to, and this even when the history might seem to indicate that the primary infection entered by way of the nose. However clear such a sequence might be, a diseased tooth might add such irritative factors as to rob any other methods of treatment of complete success.

As to what form of local treatment should be adopted for checking the suppuration within the sinus, it was pointed out that three general principles should guide the surgeon in dealing with bony-walled abscesses in any part of the body, viz.:

(1) *Efficient drainage*, the ultimate success of which will be accelerated by frequent irrigations of the unhealthy mucous membrane with mild antiseptic washes.

(2) *More or less obliteration of the diseased cavity*. This last method will be the final one if failure attends a fair or lengthy trial of simpler measures.

(3) *Attention to the general health of the patient*. It should never be forgotten that defective hygienic surroundings and excesses in eating, drinking, and smoking have a very great influence for evil upon the general progress of the case. Immoderate use of alcohol or tobacco have a great tendency to induce congestion and chronic catarrhal conditions of the mucosa of the upper air-passages, conditions which are very adverse to rapid recovery after operative interference in these regions. Occasionally two or three grains of calomel overnight, followed in the morning by a saline draught, will produce more improvement than all those new antiseptics of "high destructive power," the advertisements of which form an increasing constituent of the waste-paper basket.

1. *Drainage* (Alveolar Method).—Since efficient drainage could only take place when the opening was situated at the lowest level of the abscess cavity, an alveolar perforation was better than drainage through the canine fossa or through the inferior meatus of the nose. Drainage through the canine fossa was inefficient, and the tube or plug often caused great irritation of the mucous membrane of the cheek or gums, while any but a large opening in the inferior nasal meatus had a very great tendency to close, in addition to which the patient nearly always found a difficulty in carrying out the necessary irrigations.

As to the form of the alveolar drainage-tube, those seem to answer best in which a plate fixed to adjacent teeth supported a metal tube, the lumen of which was about the size of a crow-quill, and which was occupied by a split plug which could be inserted during meal-times, in order to prevent access of food to the antrum.

He had also seen cases do equally well in which a solid plug took the place of the tube. Whichever form of tube be adopted, care should be taken that its upper end, when it is in position, does not stand high above the level of the antral floor, for under such circumstances its very function as a drain would be destroyed.

A constant change of irrigating lotion was advocated; amongst those generally used were mentioned—

A saturated solution of boracic acid, chlorate of potash (grs. xx to the ʒj), carbolic lotion (1 in 60, for the early treatment of offensive cases), lysoform, the active principle of which was formalin, in strength min. v to a tumblerful of water, peroxide of hydrogen, 10 per cent. solution, sulphate of zinc (grs. ij to ʒj), and finally normal saline solution; all those might be found useful. In the later stages, after washing out the antrum, it might be well to inject and leave within the cavity ʒj of an alcoholic solution of boracic acid (pulv. ac. boracic, grs. x, spir. vini rect., aq. destill. āā ʒij).

At the outset the patient should wash out the antrum twice daily; as the discharge decreased, once daily; with further improvement, every second or third day; and finally, if after an interval of ten days no pus returned upon irrigating, the patient might be considered to be cured and the tube could be removed.

Dr. Herbert Tilley said three questions suggested themselves—  
(1) What is the result of such treatment? (2) How long should it be continued? (3) To what class of case should it be applied?

1. With regard to the result, his experience was that in nearly all cases, even those of long duration, alveolar irrigation rapidly diminished the amount and fœtor of the pus, together with those more general symptoms which had been described; but that in cases of more than a few months' duration it was extremely difficult to get rid of the last trace of discharge so that one could feel justified in removing the tube altogether. He had recently ascertained that out of twenty-seven of his patients for whom the alveolar treatment had been adopted and irrigation patiently persevered in only five had been able to give up their tubes. The rest still found a small amount of purulent secretion came away on irrigation, and if they failed to carry on the treatment an increase in the amount of discharge was rapidly noticed.

2. How long should the treatment be continued? Until the discharge had entirely ceased, or until the failure of simple measures rendered it obvious that if the patient desired an absolute cure some further and more radical treatment would be necessary. Out of his twenty-seven alveolar cases seen during

the past two years fifteen of them had worn the tube and carefully irrigated for at least six months—one patient had been doing so for ten years, another three and a half, and a third for two years. Many of them found the tube caused no inconvenience, and preferred to go on with the irrigation. Five, however, elected to have the radical operation—they had without exception been cured, and by the term “cured” was meant that not a trace of pus could be found within the nose.

3. To what class of case should the alveolar treatment be applied? Certainly, he thought, to all those the duration of which had been a matter of months rather than of years, and possibly as a first measure in most of the chronic cases, because now and again, even in those, alveolar drainage and irrigation had resulted in a rapid cure.

The advantages of the method were its simplicity, and in this respect it was scarcely a more serious operation than the removal of a tooth. The after-treatment could soon be carried out for long periods by the patient himself, and the general improvement which was effected was very great, even if the measure were not an entirely curative one. To the very old, the broken in health, the nervous, the busy man with the cares of a family and an exacting occupation, and to whom a week or ten days' laying up was a very serious matter, the alveolar method had many advantages. On the other hand one met with cases of long-standing suppuration in which, no matter how persistently or with what variety the irrigating lotions were used, still the discharge of pus from the nose into the mouth is profuse, the patient becomes tired of irrigating, and wants to know “if something can't be done to cure him once and for all?” Or, perhaps he or she might be one of those impatient individuals who “do not want to be bothered with tubes,” but fret day by day because they “can blow matter from the nose and always have a nasty taste in the mouth.” For that class of patients one might adopt other and more radical measures.

Apart, however, from such reasons, there might be yet others to necessitate our advising more radical measures than alveolar irrigation. He referred to those patients in whom, in spite of constant irrigation, the ethmoidal and the frontal sinuses tended to become involved in the suppurating process. In such circumstances the patient is certainly not in a safe condition, a fact of which he had only recently been reminded by the reports of two fatal cases in which meningitis supervened upon long-standing frontal-sinus suppuration.



As an illustration of the type of case he (Dr. Herbert Tilley) mentioned the following:

Mr. G. H.— consulted him some seven years ago for bilateral antral suppuration. The alveoli were drilled and plugs inserted by a dental surgeon. The patient carefully irrigated his antra twice daily with varying lotions for seven months, and when he was examined at the end of this time the pus had lost its fœtor and was diminished in amount. However, it was noticed that polypi were beginning to form in the middle meatal regions of the nose, and that the mucosa over the uncinatè processes of the ethmoids were swollen. Fearing an extension of the disease, the radical operation was advised upon both antra, but this course was not adopted.

Dr. Tilley did not see the patient for three years, when he came with severe frontal headache, œdema of the right upper eyelid, and general symptoms of malaise. There was little difficulty in determining the presence of suppuration in the ethmoidal cells and washing pus out of the right frontal sinus.

The inability to cure such cases by simple alveolar drainage and irrigation and their chronicity were due to the fact that the mucous membrane lining the antrum had undergone a polypoid degeneration, a condition which could not be cured by daily irrigation with mild antiseptic lotions. For such advanced conditions of disease, and for those cases where milder measures had failed and the patient desired an absolute cure, the Caldwell-Spicer-Luc operation might be adopted with every prospect of success.

The essential features of that operation were an opening in the canine fossa, curettage of the diseased mucous membrane, and a counter opening into the nose.

The details of the radical operation were then described, with a few modifications which Dr. Herbert Tilley had found of value.

He advised the making of a large opening in the canine fossa, with care not to wound the infra-orbital nerve where it appears on the facial aspect of the bone. The hæmorrhage which follows curettage can be checked with strips of aseptic gauze moistened with peroxide of hydrogen solution or adrenalin chloride. He thought it important that only the mucous membrane which was extensively diseased should be curetted away. The size of the naso-antral opening would depend upon the extent of the disease within the cavity, and especially of the neighbouring ethmoidal region. If the diseased mucous membrane were mainly confined to the lower half of the antrum and the middle meatal region of the nose were healthy, it would suffice if a counter opening were made in the lower

anterior region of the naso-antral wall ; this opening should at least be as large as a sixpence, because of the great tendency to cicatrization which characterises wounds in that neighbourhood.

If, on the other hand, the whole of the lining membrane were diseased, and especially if polypi or mucous-membrane hypertrophies were seen in the middle meatus of the nose, the whole of the inner antral wall should be removed, and it was that modification of the simpler operation which had yielded him his best results. The reasons for such extensive ablation were two-fold : the lower half was removed for drainage purposes, the upper half in order to destroy that membranous portion of the inner wall which was often in a polypoid condition, and also to gain access to any lower ethmoidal or maxillo-ethmoidal cells, which were so frequently diseased, and which, if left untouched, would re-infect the antrum. The sinns cavity was finally mopped out with strips of gauze soaked in carbolic lotion (1 in 20), and the operation was completed. It was unnecessary to insert any packing unless the hæmorrhage had been unusually free ; in any case only a loose strip of gauze would be required, and that should be removed in forty-eight hours' time and not replaced.

The after-treatment consisted in douching out the nose, and by that means also the antrum, twice daily for two or three weeks with some mild antiseptic wash. The patient could sit up on the third day after the operation, and might usually go out within ten days. The bucco-antral wound healed very quickly (seven to ten days), and no derformity or falling in of the cheek resulted.

Dr. Herbert Tilley had performed this operation thirty-seven times during the past two years, and had kept himself intimately acquainted with the progress of each patient. Thirty-four of them had been completely and permanently cured, if he might apply that term to cases quite free from any purulent discharge six months after the operation.

In the three cases in which the results had not been perfect he had made no counter opening into the nose, and attributed his want of success to that cause. In no case had he seen any complication beyond a temporary swelling of the cheek lasting three or four days and in four cases a severe neuralgia lasting from seven to ten days.

To the question, "What circumstances should guide us in advising a radical operation without preliminary trial of simpler measures?" one might answer, "The appearances presented by the middle meatus of the nose." If in a long-standing case this region were filled with polypoid granulations or swollen and œdematous mucous membrane, then it would be fairly certain that the

antral mucous membrane was also in an advanced state of chronic degeneration, and nothing short of radical treatment would effect a permanent cure.

It might quite naturally be asked, "What is the condition of the antrum in a successful case, six months after operation?"

There could be no doubt that it was partially obliterated by the granulations which sprang up over the bony walls uniting with those which grew inwards from the soft tissues of the cheek through the large opening in the canine fossa. This mass of granulation tissue became covered with epithelium, which spread inwards from the circumference of the naso-antral opening, because without this natural method of healing a certain degree of suppuration would inevitably continue.

It was only necessary to examine a patient four or five months after operation with a small mirror passed within the nose, or by means of a curved probe, to satisfy oneself that the original antral sinus was partially obliterated, and was only represented by a concavity upon the outer side of the nasal fossa which was very much smaller than the original antrum.

With regard to the treatment of chronic antral suppuration by means of a single large naso-antral opening, it seemed to him an unsatisfactory method, although he would not deny that occasionally a successful result might be attained by its adoption.

It provided one great necessity, viz., free drainage, but it would be quite impossible to thoroughly examine and (if need be) curette the various recesses in the antrum through such an opening. With reference to this point, he said, "When we bear in mind the pathological condition present in cases of chronic antral suppuration it will be obvious to all how necessary it is that the surgeon should have the diseased areas in full view, in order that he may efficiently deal with them. Operations or manipulations which do not fulfil these requirements lead us to suspect that, even in this year of grace, 'the world is still deceived with ornament,' and that in our desire to be original we may lose sight of those great surgical principles which form the only sound foundation upon which truly valuable methods of treatment can be founded."

[After the paper had been read a practical demonstration of transillumination and intra-nasal exploration was given upon a patient suffering from chronic antral suppuration.]

#### DISCUSSION.

The PRESIDENT (Mr. Arthur Underwood) was interested in hearing that there were cases in which pus in the antrum had

# RATION TREATED BY RADICAL

when seen	Remarks.
, 1902	After-treatment consisted in irrigation and free drainage until antrum was partially filled with granulation tissue.
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, 1902	Mucous membrane over bucco-antral wound sutured at close of operation.
, 1903	A very small amount of muco-pus can occasionally be syringed out of the nose through the fistula leading from canine fossa to natural ostium of the antrum in the nose.
, 1902	A small sequestrum was found on the floor of the antrum.
1, 1903	Recurrence was due to a suppurating focus in the upper, inner, posterior corner (ethmoidal region, of antrum.
4, 1903	Patient had an alveolar opening which would admit a lead pencil, but it failed to cure the discharge in spite of constant irrigation.
, 1903	Both frontal sinuses were subsequently opened and obliterated by Kundt's method.
12, 1903	Two or three months evolved before suppuration almost entirely ceased, during which time rubber plugs maintained the patency of the openings in the canine fosse.
, 1903.	
, 1903	From time to time nasal polypi had been removed and antra drained by different surgeons. Also applications of galvanocautery to middle meati. Radical operation at once carried out when patient came under care of writer.
6, 1903	Frontal sinus obliterated by radical operation. A previous operation through canine fossa (only) had been performed, but discharge continued. Diseased mucous membrane was found in upper, inner, posterior angle of antrum.
, 1903	Both frontal sinuses have been obliterated by radical operation. There is a narrow, fistulous tract into the left antrum from opening in canine fossa, through which a very small amount of pus discharges.
9, 1903	Operation was followed for six weeks by a tendency to formation of dry crusts within the nose.
, 1903.	
, 1903	An old piece of rubber drainage-tube was found in the antrum.
13, 1903	Patient preferred the radical operation without preliminary trial of alveolar drainage.
, 1903.	
14, 1903.	
2, 1903	Patient elected to have radical operation in first instance. The left nasal cavity was full of polypi, and antrum filled with large polypoid granulations.
, 1903.	
, 1903	Frontal sinus was operated on by radical operation at same time as antrum.
13, 1903	Patient suffered from intense supra-orbital neuralgia, which was unrelieved by alveolar drainings.
24, 1903 letter,	There is a slight discharge from right frontal sinus and right maxillary sinus is being drained.
, 1903	A superficial molecular necrosis of the posterior wall of the left frontal sinus occurred; it did not penetrate the whole thickness of the bone, and gave rise to no symptoms.
14, 1903.	
, 1903	The left frontal sinus has been obliterated by operation, and both maxillary antra have been operated on by the radical operation.
, 1903.	
6, 1903	Whole inner antral wall not removed, because upper part seemed healthy.
, 1903 letter,	
, 1903	A fistulous suppurating tract led into the left maxillary antrum through the site of wisdom tooth, which was removed 18 months previously.
, 1903	A large opening had on this occasion been made through the alveolar and curettage carried out. Discharge continued freely. Neuralgia for 10 days after operation.
8, 1903.	
, 1903	The first and second molars were dead and their septic roots projected through floor of antrum. Suffered from severe neuralgia for 14 days after operation.



SYNOPSIS OF 45 CONSECUTIVE CASES OF CHRONIC ANTRAL SUPPURATION TREATED BY RADICAL OPERATION.

arisen from the frontal sinuses. He asked Dr. Herbert Tilley if it was not possible that the natural maxillary ostium might become closed by inflammation, so that escape of pus from the nose was not always a reliable symptom. He related an interesting case in which a patient had been condemned to have his upper jaw removed "for an apparent growth." Antral trouble was suspected, and on opening the sinus nine inches of putrid lint was removed.

Dr. SCANES SPICER agreed that alveolar drainage should be reserved for acute cases or those of short duration, but that the radical operation was necessary in chronic cases, in order to deal with the diseased mucous membrane which sometimes almost filled the sinus cavity. He would recommend the radical operation as a first measure in all chronic cases. He asked for information as to the best tests for deciding when a tooth was the source of the trouble, and more especially was this knowledge desired when the antral teeth gave rise to no symptoms, but were perhaps excellent examples of conservative dentistry.

Mr. H. BALDWIN thought that carious teeth with living pulps would not cause septic infection of the antrum, but that dead teeth might do so. Sometimes it would be possible to find the erring tooth among a number of dead ones by the signs of alveolar periostitis about the roots of the teeth. The tooth might be tender to percussion and pressure, and so allow one to see which tooth it was. He asked if Dr. Herbert Tilley had seen antral suppuration in edentulous people.

Mr. NORMAN BENNETT spoke of the possibility of infection through a live pulp, and instanced the cases of tubercle bacilli which had passed through the live pulps of lower molars and infected the cervical glands. Liquids had been experimentally made to pass through the live pulp into the glands of the neck, and these facts seemed to show that possibly septic infection might pass; and it was common knowledge with dental surgeons that periostitis was sometimes found in conjunction with inflammation of the pulp, the latter being still alive. The speaker also referred to the immense benefit accruing to the general health when sources of suppuration were cut off from absorption into the system.

Mr. PAYNE bore out the remarks of the last speaker, and reminded the Society that Mr. J. G. Turner, when discussing the subject of pyorrhœa alveolaris associated with antral suppuration, had satisfactorily proved that cases did arise in that connection. He had had experience of one such case in his own practice.

Mr. W. D. PRIDEAUX made some references to the birthplace of Highmore, of antral reputation.

Mr. F. J. BENNETT said that the commonest dental cause of antral suppuration was chronic alveolar abscess or chronic periostitis. The acute form did not often cause trouble, because it found its way through the outer alveolar border.

Mr. W. HERN agreed with Mr. Baldwin's remarks, and thought that a live tooth could not even act as a predisposing cause. In the large number of living exposed pulps which they saw in hospital practice they rarely found them associated with antral empyema. Acute cases could be cured by drainage, but chronic ones more often needed a radical operation. He mentioned that a drainage-tube might be perforated laterally, and then it would act as a drain even if it stood higher than the antral floor.

Dr. BELLAMY GARDNER, speaking from the anæsthetist's point of view, said that the radical operation was not a minor one, that hæmorrhage was often free, and care must be taken not to allow blood to flow into the larynx and lungs. He had found Dr. Tilley's plan of plugging the posterior choana on the same side as the operation acted admirably in keeping the throat and air-passages free from blood. In order to avoid congestion he gave a mixture of chloroform and ether to commence with, and then continued with chloroform and a Juncker's inhaler. A light anæsthesia was sufficient as long as the nasal septum was not interfered with; under such circumstances a deeper narcosis was necessary.

Mr. CANTON thought that the majority of the cases were due to a diseased tooth or pulp. As to the cause of the antral suppuration in a case where many teeth seemed to the nasal surgeon apparently healthy, the dental surgeon, with more experience, might find reasons for condemning certain of them, and in such cases the two branches of the profession should work together.

Mr. GEORGE THOMSON pointed out that the usual tests for a dead tooth might be absent if the apex of the root of such a tooth had perforated the antrum.

Dr. HERBERT TILLEY, in reply to the President, said that he had once removed from the suppurating antrum of a medical man a piece of rubber drainage-tube an inch-and-a-half long, which had kept up a chronic suppuration for four years. With reference to antral suppuration in edentulous patients, he had seen two such cases in old ladies over seventy years of age (*vide* "Synopsis of Cases"), and he was of opinion that the teeth had been removed after they had caused the sinus trouble. One had always to be very careful in accepting statements as regards the time of onset of antral symptoms, for at first such symptoms were often regarded as due to "a chronic cold." Having listened to the various views expressed as

to the probability of live teeth causing antral disease, he gathered that most of them denied the possibility, and hence the presence of a carious tooth with a live pulp might after all be a coincidence, but if so it was a particularly frequent one. In support of Mr. Norman Bennett's suggestion that infection might gain entry through a live pulp, Dr. Tilley pointed out that tubercle bacilli could pass through the tonsils and affect the cervical glands, or through the lymphoid patches in the intestine to infect the mesenteric glands, and upon such grounds he thought it was a possibility that a similar transmission might occur through the pulp in a live tooth; but in such a matter as that he would be guided by their practical experience rather than by any theoretical conceptions of his own.

## PROCEEDINGS OF THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.

*Fourteenth Ordinary Meeting, held Monday, December 7, 1903, at 11, Chandos Street, W.*

*The President, Dr. URBAN PRITCHARD, in the Chair.*

THE following report of the Pathological Committee was presented and adopted:

GENTLEMEN,—Your Committee beg to report upon the three microscopic sections referred to them on March 2, 1903, as follows:

Two slides marked "Mary R——" and "Mrs. B——" have been submitted to the Referees—Dr. Andrewes and Mr. Shattock,—and their report is appended.

The third section, marked "A——" and stated to have been stripped off from the bone covering the external semicircular canal, shows areas of caseation and fuchsin-staining bacilli which are indistinguishable from those of tubercle.

ARTHUR H. CHEATLE.

C. H. FAGGE.

WYATT WINGRAVE.

W. JOBSON HORNE.

October 12, 1903.

*Histological Report upon Two Growths removed from the External Auditory Meatus.*

By THE REFEREES.

CASE 1 (Mrs. B——).—This growth has in general the histological characters of the innocent tumours met with in the salivary glands, palate, lip, and elsewhere, and we should classify it in the same



group of new formations now usually designated endotheliomata. This similarity renders a full and minute description of it unnecessary.

We find no cartilage in the stroma, which consists throughout of connective tissue including small areas of hyaline material. The other element takes the form of winding columns of polymorphous cells, only the very finest of which are devoid of lumen. Elsewhere the lumen is so pronounced in many spots as to produce a microcystic condition.

In the larger clusters of cells the cavities are not rarely multiple. The multiple spaces have a two-fold origin. Some are due to the formation of multiple lumina of the same kind as those appearing singly in the cross-sections of the smaller string of cells; but besides this the appearance results also from the enclosure of areas of the hyaline stroma by the extension of the cell-masses around them. This is obvious partly from the presence of similar somewhat circular areas of hyaline material in the stroma, but essentially from the circumstance that at the margin of such compound clusters hyaline foci of the stroma may be traced in process of inclusion. The ultimate results of the two processes are hardly distinguishable, seeing that the spaces due to vacuolation also hold a hyaline or finely granular substance.

The cell-strings are traceable into spaces or canals in the tissue from which, to all appearance, they arise.

CASE 2 (Mary R—).—The histological appearances here bear a general resemblance to those in the preceding case. The plexus of cell-strings in the stroma, however, is much closer and less regular, and the absence of lumen, again, is conspicuous in the lesser groups and lines of cells.

Certain areas would, indeed, be indistinguishable from those of a carcinomatous growth, and we regard the tumour as belonging to a malignant type. Clinically its malignancy is evident from its local invasion of bone and its recurrence after operation. As indicative of this important difference we should adopt the terminology of plexiform sarcoma for the growth under consideration rather than that of endothelioma. For although the histological source of the two tumours may be identical, the structural differences and clinical course point to the propriety of applying a different terminology in the two cases.

The origin of the growths in a region so close to the parotid gland is suggestive of a relationship with the neoplasms arising in connection with the latter structure.

F. W. ANDREWES.

May, 1903.

S. G. SHATTOCK.

The microscopic sections were exhibited.

The clinical history of the case of "Mary R——" will be found in Vol. I, p. 30, and Vol. IV, p. 88; that of the case of "Mrs. B——" in Vol. IV, pp. 17—20, and of the section marked "A——" in Vol. II, p. 42 of the Society's "Transactions."

The following cases and specimens were exhibited :

Mr. CHARLES HEATH showed *A Case in which a Post-aural Mastoid Operation was performed to open the Mastoid for Acute Symptoms supervening on a Chronic Suppurative Otitis Media.*

The antrum and aditus were opened from the back of the bony meatus and laid into the tympanum. The posterior third of the membrane was gone. The ossicles and remains of membrane were left, and the case was shown to illustrate the complete restoration of the membrane and hearing.

Mr. ARTHUR CHEATLE asked how the operation was performed. At present there was a cicatrix in the posterior third of the membrane, and also a membrane which was shutting off the antrum from the meatus. One always liked in such cases to see the antrum laid into the meatus, but at present there was a membrane between.

Dr. THOMAS BARR asked by what method Mr. Heath opened the antrum.

The PRESIDENT said the operation was practically a Stacke.

Mr. HEATH, in reply, said in this case in which there had been restoration of membrane the antrum and aditus were opened up in the same way as in the other complete mastoid cases, namely through the bony meatus; the only difference in the operation was that the middle ear was not emptied of its contents. The ear was turned forwards and the cartilaginous meatus removed from its posterior attachment, and the whole of the posterior wall of the meatus was removed into the antrum, and the aditus opened up in the same way as in the other patients. The replacement of membrane was due to granulation tissue. The operation was not described as a complete mastoid operation. This case was also shown as an example of complete restoration of hearing.

Mr. CHARLES HEATH showed *A Series of Cases in which Complete Mastoid Operations had been performed.*

Dr. KERR LOVE said he supposed the cases were examples of the complete mastoid operation. Two or three of the cases were still discharging, and he believed none of them had been grafted. He wished to ask why Mr. Heath did not graft them. He did not think grafting was necessary in all such cases. Some of the cases

appeared to have healed in a comparatively short time, and he asked what was the shortest time of healing without grafting. In his (Dr. Love's) experience the essential point was to have the bony wound of the proper shape, so that it could be easily reached at all times after the operation was finished, during the subsequent dressings. The second necessity was to have the meatal flaps so that they could be applied in a way to give the largest and best shape of wound for subsequent dressing. Thirdly, there should be a removal of all necrosed or carious bone, and that was the condition least under the control of the operator. It was where carious bone had to be left that failure or great delay in healing occurred, and grafting in such cases did not get over the difficulty. Where no caseous material was left, healing took place in a reasonable time without grafting. He would like Mr. Heath's series of cases to be made the text on which to discuss the advantages of grafting after the mastoid operation.

Mr. MACLEOD YEARSLEY asked what Dr. Love meant by "reasonable time," which was a somewhat elastic term. He (Mr. Yearsley) regarded the cases as examples of Stacke's operation; that is to say, removal of the attic wall and working back into the antrum. Therefore they could not be regarded as instances of the complete mastoid operation, by which he understood a combination of the Schwartze and Stacke operations.

Dr. WILLIAM MILLIGAN did not think any one would say that grafting was essential, but they would agree that it expedited the process of repair very materially and minimised the trouble in the conduct of the case. Another advantage of grafting was that one could by that means immediately seal the opening of the Eustachian tube. In several of the cases shown by Mr. Heath which were still suppurating there appeared to have been a reinfection through the Eustachian tube. The attic was cicatrised in many cases, and lined with epithelium, but there was a little muco-pus on the floor of the middle ear. The epithelialising process which had gone on had failed to cover the tympanic orifice of the Eustachian tube. If grafting had no other advantages, it had at any rate, when properly done, the great merit of sealing up at once the orifice of the Eustachian tube, and so closing one of the most important portals of infection.

Dr. DUNDAS GRANT considered Mr. Heath's cases were interesting examples of the application of a principle to which he thought had not been given the attention it deserved. One constantly found on operating in cases of chronic suppuration of the middle ear that the cortex and cells of the mastoid process had become almost

eburnated, and that in many cases the bone might be left with advantage. He (Dr. Grant) had not had sufficient confidence in the idea to put it into practice in any considerable number of cases, for fear of leaving foci of disease; but Mr. Heath's cases gave one great encouragement to persevere in that direction. It was all very well to make as large a cavity as possible, but one must recognise that when a large cavity was left opening out from the posterior wall of the meatus, it often served as a pocket in which *debris*, such as desquamated epidermis, collected, causing a feeling of discomfort and involving periodic scavenging of the part. He often wondered whether it would not have been as well if he had left the eburnated bone in place of a yawning abyss. Whatever the defects of the operation, he thought Mr. Heath was to be congratulated on the results all round. He recalled a case which he showed before the Society about a year ago, in which there was attic disease, and in which, after turning forward the auricle, he chiselled the outer wall of the attic and aditus and got into a cavity which was lined with a cholesteatomatous matrix. He felt justified in omitting to remove the outer part of the mastoid process, and the case did extremely well; but it was already epithelialised, and a condition akin to that caused by a graft was present. The disease seemed limited by the matrix. In that case he did very much the same as Mr. Heath had done, though he had left the remains of the membrane and the ossicles, with a very good functional result. Still, the functional result might have been as good if he had removed the membrane and ossicles as well, because when they are removed and the internal ear is otherwise sound, the result with regard to hearing is often most satisfactory, and sometimes better than before the operation.

Mr. CRESSWELL BABER said the Society was indebted to Mr. Heath for showing these cases, but as he had not seen the operation he could not express an opinion about it. As far as he understood, it appeared to be a modification of an operation, of which he had seen several lately, which consisted in performing a radical operation by chiselling away the posterior wall of the meatus. A start was made at the edge, instead of doing a Schwartz first and a radical operation afterwards. As Mr. Heath left the whole of the cortex, it would be difficult to transplant. It would be very important to hear from him the length of time his cases took to heal, especially in regard to the use of a tube instead of plugging.

Mr. H. E. JONES said he understood Mr. Heath to say that in his series he rarely or never met with mastoid cells in a chronic case. Of course if one was sure one was dealing with eburnated



bone without cells, he could understand that a small cavity was an advantage; but how was one to know that there were no cells? In two recent cases on which he operated the bone appeared to resemble gruyere cheese, with large cells separated by compact bone, and each cell—and there were many—was filled with *débris*. The antrum was cut off from those cells, but the cells were there nevertheless, and encircled by dense bone. The second case had been operated upon by a general surgeon about two years before, and it was sent to him because the suppuration continued. On exposing the bone and enlarging the opening, he found the kind of condition he had described, and it was necessary to remove practically the whole of the mastoid process before he could feel sure that the whole of the disease had been eradicated. In such cases, which were not so rare as Mr. Heath had suggested, something more than simply removing the anterior wall of the antrum was required.

Dr. BARR asked how Mr. Heath dealt with the meatal flap. If Mr. Heath neither sutured the flap nor packed the interior of the ear, it was difficult to understand how the flaps kept in proper position. Another point was the presence of moisture on the inner wall of the tympanum, seen in most of Mr. Heath's cases. Dr. Barr had experienced every now and again the same difficulty—namely, that while the upper parts, the attic, aditus and antrum, were dry and epithelialised, a certain amount of moisture persisted on the inner wall of the lower tympanic cavity. Is that moisture due to any persisting carious condition of the inner wall of the tympanum, such as behind the fenestra rotunda; or was it due to the extension of a catarrhal process from a permeable Eustachian tube? From whatever cause, it was in some cases a troublesome remnant of the disease for which the operation was undertaken.

Mr. A. L. WHITEHEAD thought Mr. Heath had done an ordinary Stacke operation, working backwards, and he had been fortunate in having a series of cases in which there was little or no disease in the mastoid proper, so that he had no occasion to get into the mastoid. Mr. Heath's operation would not discover disease there, nor be adequate to deal with it; in such a case he would have had to make the "large abyss" mentioned by Dr. Dundas Grant. When there was disease in the mastoid the question of grafting after the complete removal of the disease was a very important one. In some cases upon which he had operated, where the bone disease was very extensive and bilateral following influenza, grafting was performed on one side and not on the other. The side which was grafted healed in three weeks, but the other did not heal for four

months, though the extent of disease was equal on both sides. Undoubtedly in the case of a large cavity grafting materially shortened the process of repair. But if Mr. Heath dealt with such a small cavity in the bone, it was a nice point whether it was worth while turning the ear forward again and grafting. The whole point of the series of cases shown seemed to be that there appeared to have been very little disease.

Dr. JOBSON HORNE said the Society was much indebted for the series of cases. He did not know whether Mr. Heath meant he adopted that form of treatment in all his cases requiring a mastoid operation. It was difficult to lay down hard and fast rules in regard to any particular line of operation; each case had to be taken on its own merits. The amount of disease present would decide largely what one should do. He was anxious to know whether the operation now detailed by Mr. Heath was his settled plan.

Mr. ARTHUR CHEATLE wished to associate himself with Mr. Jones in regard to the mastoid operation. Any operation which did not permit inspection of the mastoid cells was to be deprecated. With regard to grafting, Mr. Ballance laid it down at the Liverpool Meeting that the only advantage of grafting was that it shortened the time of healing. Dr. Milligan had said he closed the Eustachian tube with his graft, but it was difficult to apply a graft over the mouth of that tube. If the mouth of the Eustachian tube were curetted, the resulting granulation tissue would shut that out as well as any graft. He asked what Mr. Heath used a drainage-tube for. His own practice was to turn a flap from the meatus and stitch it in position on the raw surface, leave off packing and everything else after the first week, and do the subsequent treatment from the meatus. Packing was not necessary.

Dr. HEMINGTON PEGLER raised the question whether allowing the Eustachian orifice to be closed by granulation-tissue formation or by graft would not act prejudicially to the chances of improving or restoring hearing after the complete post-aural operation. He had experienced a fair number of cases in which inflation by the Politzer bag some time after operation had greatly improved the function, and in one particular case restored normal hearing in the affected ear, though a repetition of the process was occasionally necessary. He was desirous of obtaining opinions as to how this result was brought about under the changed conditions.

Dr. HERBERT TILLEY said he had taken considerable interest in Mr. Heath's cases, which had been in the same hospital as that with which he himself was connected. A point worth noticing was

that the incision behind the ear was out of sight; the wound was in an excellent position and seemed to heal extremely well. Of course, if the ordinary semicircular incision were carried backwards into the hair and brought forward again below, a great deal of it would be ultimately invisible. It was practically impossible to see the wound in Mr. Heath's cases after twelve months. That could not be said about the larger and more usual incision. With regard to Dr. Milligan's remarks, he would ask him in how many cases of skin-grafting he had succeeded in closing over the Eustachian tube so securely that it had not burst out again in a month or two when the patient had a cold. He believed that was a not uncommon sequel in such cases. He had often noticed that patients with a little moisture issuing from the tympanic end of the Eustachian tube seemed to hear better than those which remained permanently dry. He would like Mr. Heath to give details of his after-treatment, which certainly was painless, whereas in the ordinary way in packing the removal of the first dressing, especially in children, was often very painful. Two days ago he (Dr. Herbert Tilley) operated by Mr. Heath's method on a child whose right ear had been suppurating since birth, the infection arising from septic complications in the mother; the case had done extremely well. Whatever might be said with regard to Mr. Heath's method as a whole, there were one or two features in the operation and after-treatment which seemed worthy of consideration, and which might usefully modify the steps of the ordinary complete mastoid operation as it is usually carried out.

Dr. ADOLPH BROXNER said that every mastoid case was different, and the operation should be selected to suit the case. In some cases grafting was desirable, in others not. In some cases he used a drainage-tube, in some packing, and in others nothing at all.

Mr. HEATH, in reply, said he did not graft, because he removed so little bone that there was a very small cavity to fill up, and that was the reason he adopted his present procedure. When doing the larger operation years ago it became necessary to fill up the hole, but he had given that up for the reasons explained. In reply to Mr. Yearsley, he did not think it was necessary to give it any particular name; he found it very useful, and adopted it in all cases where he was not obliged to do the larger operation. He had done fifty in the last six months, and had seen no reason to regret it. The hearing was very much better than members had had an opportunity of judging in the noise going on. Dr. Milligan had said that grafting was good. All were entitled to their opinions; he had given it up for the reason he had explained.

If one blocked such a small cavity with a graft, one would scarcely be able to see the middle ear. It was true there was still moisture in some cases, but it could not be called pus. One of his principles was to leave the mucous membrane of the middle ear. He had to take away the ossicles, and there was a certain amount of curetting done to the attic, and that was one of the reasons the attic had the tendency to dry, whereas the lower part of the middle ear had not. Much curetting could not be done without impairing the hearing power. In removing the ossicles the amount of curetting was limited by that removal; one of the great points of the operation was to retain the hearing. If the mucous membrane were curetted from the inner wall, it was likely to be replaced by scar tissue, and that would fix one or both fenestræ, the freedom of which was one of the vital principles in the operation. The average time of retention in hospital after the operation was about a week. The dressing was taken off on the day following operation, and a smaller one applied and the tube left in, the small piece of tissue in the attic being removed through the tube. In two days the posterior incision was healed, and all dressing was discontinued, a small piece of cotton wool being put in the concha in front to hide the tube. On the third day spirit drops were begun, the effect of which was to diminish the formation of granulation tissue. If there were much granulation tissue there was a discharge from it, and the granulations were apt to grow across from the ridge to the front wall. Often there was considerable ulceration before operation; he saw the cases once a day, and the spirit drops were applied by the nurse. Granulation tissue was a great bugbear, and if it was excessive he removed it by means of fine forceps. This was hardly ever necessary. He regretted having no time to reply to all the questions, but had exhibited his cases as much to show the good hearing as the method of the operation.

Mr. ARTHUR H. CHEATLE exhibited the following specimens:

1. *Right Temporal Bone from a Patient aged Fifty-four Years, showing Three Ivory Exostoses growing from the Vaginal Process.*
2. *Right Temporal Bone from a Patient aged Thirty-four Years, showing General Thickening of the Vaginal Process.*

Specimens 1 and 2 illustrated that exostoses and hyperostoses were due to changes in the tympanic portion and not in the squamous or mastoid portions. The same point was shown in the specimens among the collection of skulls in the Royal College of Surgeons' Museum.



3. *Single Pedunculated Exostosis removed from the Anterior Meatal Wall close to the Orifice in a Young Man.*

The pedicle was extremely thin and easily broken through. The specimen was sawn in half, the section passing through the pedicle.

4. *Single Pedunculated Exostosis removed from the Same Situation in a Middle-aged Man.*

The specimen was sectioned through the pedicle.

5. *Small Single Pedunculated Exostosis removed from the Same Situation in a Young Woman.*

6. *Right Adult Temporal Bone showing Marked "Lipping" and Thickening of Sutures and of the Posterior Border of the Mastoid Process, with Partial Bony Obliteration of the Round Window.*

MR. HUNTER TOD showed a *Case of Rodent Ulcer involving the Left Auricle and the External Meatus in a Man aged Forty-nine Years.*

Eight years ago the patient first noticed a small wart, which soon became an ulcer, on the anterior margin of the lobule of the ear. As it caused no pain he did not seek treatment until two years ago, although the ulceration had spread considerably. He had been under treatment by the X rays for eighteen months before going to the London Hospital, but did not think there was much improvement. On admission to the hospital three months ago the ulceration involved the lower half of the auricle and the external meatus, to within one-third of an inch of the membrana tympani. The skin in front of the tragus, over the parotid region, was replaced by scar tissue, as if the ulcer had been more extensive, and had been partially healed by previous X-ray treatment. The patient was improving under treatment, with exception of the external meatus, where the ulceration seemed to be slowly advancing towards the membrana tympani.

Dr. LENTHAL CHEATLE said he had for some time been of opinion that rodent ulcer and squamous epithelioma were associated in incidence with the maximum points of Dr. Head. He had tried to point out that those rodent ulcers in spreading occupied certain definite areas when they got to a certain point, and he had all along believed that those areas were nerve-areas. He had shown that rodent ulcer did not spread in anæsthetic areas. He had a series of four cases which began on exactly the same point as in Mr. Tod's case, viz., the mandibular maximum point. They corresponded with Heiberg's conception of the distribution of the fifth nerve. He asked the Society's help in collecting records of cases of rodent

ulcer and squamous epithelioma on the pinna, a region of very mixed nerve-supply, viz. pneumogastric, second and third cervical, posterior spinal roots; also the fifth nerve.

Mr. TOD asked for advice as regards future treatment. Was it advisable to rely entirely on the X-ray treatment, or should one interfere surgically, so as to avoid the ulceration spreading to the middle ear?

Dr. HERBERT TILLEY considered that, as the ulceration was rapidly approaching the membrane, it would be as well, if it were possible, to remove the disease, or part of it, surgically. Should there be recurrence at any spot, the light treatment could then be resorted to.

Dr. MACNAUGHTON-JONES said that the most successful treatment in cases of rodent ulcer elsewhere he had found to be the application of chloride of zinc paste. When the ulcer was shaved off the paste was then applied. This, if done in such a case as the present, if seen in its earlier stage, he believed would be effectual.

Mr. WHITEHEAD asked how long the case had been under treatment by the X rays, and what the amount of improvement had been.

Dr. JOBSON HORNE said it would be interesting to have a record of the present extent of the disease, by means of a photograph or coloured drawing for the "Transactions," because it was always interesting to see such cases some years hence.

Mr. ARTHUR CHEATLE thought the treatment of the case should be by X rays; and if by some such method as Dr. Tilley suggested the deeper parts could be brought within reach of the rays, so much the better.

Dr. MILLIGAN thought the case would be better treated surgically from the present moment. The disease was creeping towards the middle ear, and would soon invade it, and then the chance of recovery, even under the "light treatment," would be minimised. He would be disposed to remove as much of the diseased tissue with the knife as was possible, and, as Dr. Tilley suggested, if there were recurrence, to fall back on the "light treatment."

Mr. TOD, in reply, said that Dr. Sequeira, who had treated the patient by the X rays, thought he would be able to effect a cure; but he (Mr. Tod) would report to him the result of the discussion, and would operate if it was found that the X-rays treatment could not arrest the extension of the disease within the external meatus.

Dr. MACNAUGHTON-JONES showed *A Case of Unilateral Deafness from Childhood, due to Various Middle-ear Causes and Polypus.*

Dr. Macnaughton-Jones showed a patient, aged forty, with

the following history :—She never remembered hearing with the right ear, and she and her friends were always under the impression that it was useless. The only affection from childhood from which she suffered was measles. As long as she could recollect she was troubled with pain in this ear periodically. This was occasionally relieved on the formation of abscesses, and these continued to recur until she was twenty-three. Then followed a purulent discharge, which continued on and off, in spite of treatment. Two years since a small polypoid growth was detected, but nothing was done until September, 1902. Dr. Macnaughton-Jones then saw her, and removed a large pedunculated polypus, which filled the meatus. Beneath this was a mass of granulation tissue extending into the tympanum. This was curetted out. On a few subsequent occasions all remaining granulation tissue was scraped away with a fine curette, and trichloracetic acid was used subsequently. Treatment ceased about a year ago. It had consisted of applications of peroxide of hydrogen (10 vol.) and formic aldehyde. Lately she had come again in consequence of some slight moisture, but there was nothing purulent, and the tympanum was otherwise quite healthy. The attic was clear; the stapes remained, with portion of the malleus, and she could hear a low whisper with that ear at a distance of some feet.

Mr. CRESSWELL BABER asked what operative treatment was performed.

Dr. MACNAUGHTON-JONES said, in reply, that the operative treatment consisted, as he had said, of the removal of a large polypus from the external meatus, at the bottom of which, and partly filling the tympanum, was the granulation tissue. This was curetted away completely. The principal interest of the case consisted in the fact that the patient had never been aware of any hearing in that ear. The operation was performed fifteen months since.

The PRESIDENT said it was not his intention to inflict a long speech on the members, but he could not leave the chair without thanking them for the kind manner in which they had supported him during his Presidency. He also thanked the officers, especially the Secretaries, for the way they had seconded his efforts during his two years of office.

Mr. CUMBERBATCH proposed a cordial vote of thanks to the President for the way he had fulfilled the duties, both official and social, appertaining to the position of President. He had held the office with great credit to himself and with benefit to the Members.

PROCEEDINGS OF THE LARYNGOLOGICAL  
SOCIETY OF LONDON.

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*Eighty-fifth Ordinary Meeting, December 4, 1903.*

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J. CHARTERS SYMONDS, F.R.C.S., *Vice-President, in the Chair.*

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The following cases, specimens, and drawings were shown :

Major O'KINEALY, I.M.S., showed *Drawings of Localised Psorospermiosis of the Mucous Membrane of the Septum Nasi.*

A microscopic specimen and report of the first case of this condition, discovered by Major J. C. Vaughan, I.M.S., and the exhibitor in 1894, were brought before the Society in April, 1903.<sup>1</sup> He was now able to show three drawings of other cases through the kindness of Major F. J. Drury, I.M.S., the Professor of Pathology at the Medical College, Calcutta, to whom also, with Lieutenant-Colonel G. Bomford, I.M.S., the Professor of Medicine, he was indebted for further information. The drawings, executed by Babu Behari Lal Das, the College artist, accurately depicted the clinical appearances of the growth and the microscopic structure of a fresh section of it.

Since the original case, about seven or eight others had been seen at the Medical College Hospital, and most of them by Captain T. B. Kelly, I.M.S., to whom was due the credit of recognising the disease by its clinical appearances. It had only been met with in natives, no common cause had been discovered for the presence of the parasite, and it seemed to be confined to isolated cases, as none of the patients had been aware of any similar affection among their fellows. Epistaxis was practically the only symptom complained of, and the growths bled very readily. They apparently occupied the same position on the anterior part of the cartilaginous septum in all cases, and had the appearance of a strawberry or a raspberry, or perhaps still more of an arbutus berry.

Captain Kelly had found removal of the tumour, with cauterization of the base to be the best form of treatment, and appeared to have had no complaints of recurrence since the adoption of this plan.

A section of the growth when fresh was seen to be studded with minute white dots, which under the microscope were found to be cysts filled with granular bodies. Each of these bodies contained about a dozen refractile granules, and there seemed to be a pore in

<sup>1</sup> JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, vol. xviii, p. 375.



the cyst wall through which the bodies escaped into the surrounding tissues. Specimens stained fairly well by Gram's method.

So far as could be ascertained, this species of sporozoon had hitherto not been known in man. Its proper place among the Sporozoa had not yet been determined, and the opinions of those who had seen it differed as to whether or not it should be classed with the Coccidia. Pfeiffer, in his work on the Protozoa,<sup>1</sup> described a somewhat similar parasite in the tench, and classified it with the Myxosporidia.

The CHAIRMAN said that the drawings were exceedingly good. Had any other members experience of similar cases?

Sir FELIX SEMON expressed the hope that it would be possible to incorporate these drawings in colours in the *Proceedings* of the Society as they seemed to be perfectly unique.

The CHAIRMAN agreed that they must make an attempt to have these drawings in the *Proceedings* as suggested by Sir Felix Semon. He thanked Major O'Kinealy for presenting them to the Society.

Major O'KINEALY, I.M.S., showed *Drawings of a Large Piece of Bone removed from the Larynx of a Boy.*

The patient, a German Jew, aged five years, came into the Presidency General Hospital, Calcutta, from Singapore, on November 20, 1899, with the history that about five months previously a piece of bone had stuck in his throat while he was eating some stewed duck. As a result of this there was marked dysphagia and pain in the throat, which gradually passed off after about ten days, but his voice had been permanently reduced to a whisper.

On admission the child, who was healthy and very intelligent, could not speak above a hoarse whisper, and his breath was offensive. Laryngoscopic examination showed a white body, about a line in breadth, lying in the antero-posterior diameter of the larynx, midway between and slightly above the ventricular bands, and extending from just below the cushion of the epiglottis to the middle of the upper border of the interarytænoid fold. When examined with the probe, it felt like a piece of bone, and was found to be firmly fixed at both ends, where it was embedded in pink nipple-shaped masses of thickened tissue. The thickening was greater anteriorly, where the foreign body was more firmly impacted, and there extended downwards between the ventricular bands. Both vocal cords were congested, but moved freely. Below the left cord, and parallel to the foreign body, lay another white linear body, which looked like a second piece of bone.

<sup>1</sup> "Die Protozoen als Krankheitserreger."

The body was removed by the endolaryngeal method under cocaine anæsthesia, and some force was required to dislodge it. It was covered with an offensive discharge, and proved to be a large flat triangular piece of bone, which had been impacted with its apex vertically downwards. It seemed to be part of the breast-bone of a bird, and from the left-hand surface as it lay in the larynx a ledge of bone projected at right angles to the general mass, close to the apex. Owing to its position, only the edge of the bone's base and part of the upper surface of the ledge were visible, and looked like two pieces of bone in the laryngeal mirror. The measurements of the bone were—length  $\frac{3}{4}$  inch, width at base  $\frac{5}{8}$  inch, thickness at base  $\frac{1}{10}$  inch, thickness inclusive of ledge  $\frac{1}{4}$  inch, thickness in other parts  $\frac{1}{20}$  inch. The boy rapidly regained his voice, and left hospital on November 29, 1899.

When the age of the child and the size of the foreign body were considered, it was interesting that so little trouble should have been caused by its five months' impaction in the larynx, a result doubtless due to the position in which it lay.

The CHAIRMAN congratulated the exhibitor on the successful removal, and was glad to hear such good work was being done in India.

Major O'KINEALY, I.M.S., reported a *Case of Unilateral Fibrinous Rhinitis*.

A Eurasian boy, aged four years, was admitted into the Presidency General Hospital, Calcutta on June 7, 1900, with a history of purulent discharge from the left nostril and pain of about seven days' duration. The child occasionally suffered from fever, and about a month previously caught a slight cold, which was followed by a little running from the nose. There was no similar trouble and no diphtheria in either the household or neighbourhood in which he lived.

On admission the left nostril was completely blocked by some foreign substance, and was full of muco-purulent discharge. The right nostril was clear and healthy, as was the remainder of the respiratory tract. The submaxillary glands were slightly enlarged and tender, the temperature was between 99° and 100°, and there was a little albumen in the urine.

On removal the obstruction was found to consist of a solid fibrinous cast of the left nostril, yellowish white in colour, covered with muco-purulent secretion, and about two inches long. There was slight bleeding after it was removed. No antitoxin was used, and the child rapidly recovered under internal tonic treatment with

an alkaline nasal douche. There was at first a good deal of discharge from the nostril, occasionally blood-stained, with some tendency to the formation of membrane, which, however, soon stopped, and the glands subsided. The temperature, which never went above  $101.4^{\circ}$ , fell to normal in a few days, the albuminuria disappeared, and the boy left hospital on the 19th June, 1900. When seen subsequently he was quite well, and none of the household had suffered in any way.

The fibrinous mass was unfortunately thrown away without being examined, but Dr. J. Nield Cook, the Health Officer of Calcutta, kindly made bacteriological examinations of the discharge and the membrane that re-formed. No Klebs-Löffler bacilli, however, could be discovered. Despite this negative result, the albuminuria and other constitutional symptoms point to the conclusion that the case was in reality one of mild nasal diphtheria, such as many other cases of so-called fibrinous rhinitis have proved to be.

Major O'KINEALY, I.M.S., reported a *Case of Membranous Tonsillitis in a Child suffering from Plague*.

A Eurasian boy, aged three and a half years, was admitted into the European General Hospital, Howrah, on March 29, 1902, suffering from fever of about twelve hours' duration. The child came from a plague-infected neighbourhood, and immediately after admission he had an attack of convulsions with diarrhoea, and a rise of temperature to  $104.2^{\circ}$ .

On April 1 moist sounds were heard in both lungs, having started in the left lung the day before, and a couple of enlarged and tender glands made their appearance, without any obvious local cause, below the angle of the jaw on the right side. The following day the glands were larger, and had fused into a hard painful mass, and a yellowish-white adherent membrane was seen to cover the right tonsil. An injection was given of 5 c.c. of serum, representing 1000 units of diphtheria antitoxin, and the throat was treated locally with sublimate lotion (1 in 1000), with the result that the membrane gradually disappeared.

Meanwhile, however, the general condition of the child became graver, and he developed definite symptoms of plague. Bubonic swellings successively appeared in the right side of the neck, in both submaxillary regions, below and behind the left ear, and in both groins, accompanied by acute lymphangitis of the right thigh. Albuminuria and double broncho-pneumonia set in, the diarrhoea persisted, and the temperature, which had remained high since admission, ranged from  $100.4^{\circ}$  to  $105^{\circ}$ , only once falling to  $98^{\circ}$ .

for a short time; while the pulse rate and respirations increased to between 132 and 144, and 44 and 64 a minute respectively, and the child died on the 14th April, 1902, in spite of all treatment. Before death the lymphangitis had cleared up, and, of the glands in the neck, those on the left side had subsided, those on the right had become smaller, and on this side also suppuration had occurred in the two glands first affected; there was nothing but a small white speck to be seen on the right tonsil. No bacteriological or post-mortem examination was made.

It is known that inflammation and ulceration of the tonsils and pharynx occur in plague;<sup>1</sup> a diphtheroid pharyngitis has also been noted in the later stages of the disease, and is looked upon as a very grave sign.<sup>2</sup> In the present case the circumstances were different, inasmuch as the membrane appeared on the tonsil at an early period, before the diagnosis of plague was fully established, and gradually disappeared after the use of diphtheria antitoxin. The patient undoubtedly died from plague, and the question therefore arose whether his case should not be regarded as a double infection of diphtheria and plague, originating in the tonsil, rather than a diphtheroid condition arising from the latter disease.

Dr. SCANES SPICER showed a *Case for Diagnosis of Laryngeal Disease in a Man of fifty-one and a half years of age, showing Extensive Ulcerative and Hypertrophic Changes.*

This case was shown at the meeting of this Society on April 12, 1901 ("Proc. Laryng. Soc.," vol. viii, pp. 106-7).<sup>3</sup> Of the suggestions offered—(1) an exploratory thyrotomy, and (2) a course of mercurial inunction, combined with larger doses of potassium iodide—the patient elected the latter. In a few months the thickened appearance of the posterior wall disappeared, and the left cord regained its mobility. The patient kept well for eighteen months. Early in the present year a small warty mass appeared on the right cord, together with general thickening, reddening, and variable œdema of the whole left side of the larynx and epiglottis. In spite of the resumption of the antispecific treatment this persisted, and was followed by ulceration of the left side of the epiglottis and left half of tongue; this had not been arrested by cleansing sprays, or insufflations of orthoform or iodoform. No tubercle bacilli were found on examining the sputum, and there were no enlarged glands or cachexia. The last few weeks there had been some pain and dysphagia.

<sup>1</sup> Jennings, "A Manual of Plague."

<sup>2</sup> Scheube, "The Diseases of Warm Countries."

<sup>3</sup> JOURN. OF LARYNGOL., RHINOL., AND OTOL., vol. xvi, p. 280.



The appearances were quite equivocal, and the case was shown to elicit opinions as to the nature of the condition and suggestions for treatment. Dr. Scanes Spicer himself suspected malignancy, but doubted the expediency of excision on account of the extensive involvement of the epiglottis and of the left half of the larynx. The case well illustrated the difficulties which beset the diagnosis of laryngeal neoplasms in certain instances, even although under constant observation.

Mr. W. G. SPENCER thought it was a case of hypertrophic tubercle.

Mr. P. DE SANTI said that he showed a case to the Society some years ago very similar to this, and well known to various members. The patient had chronic tuberculosis, and so much stenosis that tracheotomy had to be done; he lived for nine years afterwards. On many occasions his sputum was examined, but no bacilli were found. He himself saw him for a period extending over seven and a half years; the man was also known to professors abroad. There was a great difference of opinion as to the diagnosis. Eventually he died of a sharp attack of acute tubercle, and there was no doubt it was a form of chronic tuberculosis from which he had suffered. He had syphilis in Japan, and it was a question whether the case was not a mixture of tubercle and syphilis. A similar explanation might apply to Dr. Spicer's case.

Dr. STCLAIR THOMSON, judging from the appearance only, considered the case one of tuberculosis in a syphilitic subject.

Sir FELIX SEMON agreed with the opinion that it was a mixture of tubercle and syphilis. It might be a kind of hyperplastic form of syphilis, which recurred from time to time and disappeared under the use of antisyphilitic remedies. What induced him to believe the case was a mixture was the appearance of the epiglottis, which was more like a syphilitic than a tubercular ulcerating tumefaction.

Dr. SCANES SPICER said the patient got practically well on one occasion on antisyphilitic treatment, and continued so for eighteen months. The thickening and ulceration then came on again rapidly, and more extensively than before. In reply to Mr. Spencer he said that a negative result had hitherto followed examination for tubercle bacilli.

Dr. TILLEY and Mr. LAKE regarded the condition as probably epithelioma, and advised radical extirpation of the diseased tissues.

Mr. CHARTERS SYMONDS showed a *Case of Operation for Rupture of the Trachea*.

Mr. M——, aged thirty, while riding a bicycle in September,

1899, ran into the pole of a van. He was unable to state exactly what happened. There could be no doubt that he had received a heavy blow in the neck, either from the pole of the van or the handle-bar of the bicycle. When brought home he had great pain in the neck, was unable to lie down, and expectorated blood. Emphysema appeared in the neck and chest, and lasted for about eight days. There was an irritating cough, which was relieved on the fifth day by the expectoration of a slough. No cartilage was found in the slough.

In October the breathing became difficult, and stridor appeared. In November he had an attack of acute pneumonia. The distress of breathing was greatly increased by the tracheal obstruction.

On November 21 he was seen in consultation with Dr. Craig. The voice was clear, indicating that the larynx had not been injured. On moving about he breathed rapidly, and on further effort there was distinct stridor, evidently arising in the trachea.

On laryngoscopic examination the larynx was normal, the vocal cords moved well, and there could be seen about the level of the third ring a pale projection from the left side, and to the extreme right a dark irregular aperture, evidently the altered lumen of the trachea. This was only visible occasionally. Externally the trachea was irregular, being somewhat depressed on the left side, and slightly prominent on the right.

A diagnosis of rupture of the trachea was made, but whether the stenosis was due to contraction of a wound in the mucous membrane only, or whether it involved the trachea, remained doubtful. The depression on the left pointed to injury of the cartilage.

As the man was unable to take any exertion without difficulty of breathing, he was advised to submit to an operation, with a view of removing the obstruction. He took some time to make up his mind, and it was not until February of the following year that the operation was performed. There had been no increase in the symptoms during the previous month, so that the stenosis had probably become stationary three months after the accident.

On dividing the trachea in the median line the bulging from the left side was confirmed. The third and fourth rings were injured. One of them was broken and bent inwards. They had been also separated, so that the trachea appeared somewhat lengthened on this side, and sharply bent inwards. The mucous membrane had evidently been ruptured, but was soundly healed. The deformity was partly corrected by removing a part of the

cartilage, and sewing the adjoining rings together. At the same time the sutures were so placed as to avert as much as possible the indented wall. The trachea was not closed. The wound was covered with gauze; a tube was not used.

He made a rapid recovery, and has not suffered from any inconvenience since. At the present time there could be seen a pale scar projecting from the left wall, and nearly surrounding the trachea. The aperture was of good size, and the man was able to attend to his duties—those of a bank clerk,—and affirmed that he suffered no inconvenience whatever.

Sir FELIX SEMON congratulated the President on the very successful issue of the case.

Sir FELIX SEMON showed a *Case of Obscure Ulceration of the Left Vocal Cord of nearly One Year and a Half Standing in a Gentleman aged about sixty.*

The patient, very thin and unhealthy-looking, was sent by Dr. Buckell, of Chichester, on June 14, 1902, on account of hoarseness, which was found to be due to isolated congestion of the left vocal cord. Careful examination of the chest failed to reveal any tuberculous mischief, and there was no history of syphilis. Complete rest of voice was recommended, and a general tonic, together with benzoic acid lozenges. When seen again six weeks later, the congestion of the left vocal cord was distinctly diminished, and his general health improved. He went to Switzerland, and was further benefited, but when seen again at the beginning of September the left vocal cord was found in part ulcerated, and in part tumefied. The ulceration occupied the middle part of the left vocal cord, and the tumefaction surrounded it on all sides. At the same time the mobility of the cord was quite preserved. Although syphilis seemed to be practically excluded by the patient's previous history, which was intimately known by Dr. Buckell and Dr. Thomas Wingrave, who on the occasion just named, and later on, used to accompany the patient, he was given iodide of potassium in ten-grain doses. His expectoration was repeatedly examined by Mr. Shattock for tubercle bacilli and for epithelial fragments, and his weight and temperature were carefully registered by Dr. Buckell. The result of all these examinations was absolutely negative. From that time onwards the case had become more and more obscure. Temporary improvements alternated with aggravations of the hoarseness, and also of general sensations of pain and discomfort in the throat and all round the neck, of which the patient had complained from the very first. The

left vocal cord was sometimes more, sometimes less tumefied, and always ulcerated, but the ulceration did not show any tendency to extend further than when first seen: the tumefaction in its neighbourhood had always remained on a very limited scale, and the mobility had throughout remained perfectly free. On more than one occasion slight enlargement of the cervical lymphatic glands on both sides of the neck had been observed, but this had always disappeared. The patient had been seen on various occasions by Mr. Butlin, and by Mr. Charters Symonds, who had entertained the same suspicions towards which he had leaned, viz. that the ulceration was either tuberculous or malignant, more likely the former; but the absence of any further developments, and of any demonstrable signs of either lesion, had not confirmed these fears. The Society would in all probability find the patient extremely ill-looking, and there was no doubt he was, but he was not one whit more so than when first seen, nineteen months ago, and he had ever since been able to fulfil the duties imposed upon him by his connection with many benevolent associations, in addition to the cares of his own business. Dr. Wingrave, who had known him for twenty-five years, told him that his appearance had always been the same, that his weight had never been more than 8 stone 6 pounds, and that he and his family had always been extremely neurotic.

In the whole of his practice he only remembered one single case, which ultimately turned out to be epitheliomatous, in which an ulceration and tumefaction of a vocal cord of an obscure nature had remained so long stationary as in this case. In the early stages of his affection the possibility of anthrax was mentioned, as he was a wool merchant; but there had been nothing in the case, then and since, to justify that suspicion. He would much like to hear the views of the Society as to the diagnosis in this case.

The CHAIRMAN had seen the man some time ago, and the condition to-day was very much like it was then. It struck him that the surface was a little less prominent and a little smother.

Dr. SCANES SPICER said it appeared to him the fleshy condition of the left cord (which was not now at all paretic) was due to small masses allied to vascular fibroma, and that the condition was not of a malignant nature.

Dr. HERBERT TILLEY thought that the granular congestion of the freely movable cord was in favour of chronic tuberculosis, and this even in spite of the fact that no tubercle bacilli could be found in the sputum. Chronic fibroid tuberculosis in old people was often unaccompanied by any active symptoms for long periods of time.



Dr. BEALE agreed with the view taken by Dr. Tilley. He had seen cases (and watched them) of chronic tubercular disease of the lung where similar fleshy masses had been present. They were limited to one side and superficial, and had the curious vascular appearance that was seen in this case. He had not seen these cases very frequently, but he thought this was the nature of Sir Felix Semon's case. They did not interfere with the movement of the cord at all.

Dr. LAW said that in comparison with the growth in the case shown by Dr. StClair Thomson, so far as he could see, this appeared a more isolated growth, and not a tuberculous infiltration. This growth, he thought, was possibly vascular.

Sir FELIX SEMON, in reply, said that, whilst thanking the various speakers for their suggestions, he was afraid that not much fresh light had been shed upon the case. Personally, he was inclined to believe that the ultimate solution would be found in chronic tuberculosis.

Sir FELIX SEMON showed a *Case of Epithelioma of the Larynx, twice operated upon by Thyrotomy and Resection of the Cricothyroid Membrane.*

The patient was a gentleman aged fifty-eight, who had been suffering for a long time from albuminuria and chronic bronchial catarrh, and had, after a fresh attack of bronchitis several months before, whilst staying at Cannes, become completely aphonic. Examination of the larynx proved extremely difficult, and only after repeated efforts was it seen on the next day that on the front part of both vocal cords there were irregular nodular whitish outgrowths, not big, each being about the size of half a pea. The whole, however, made more the impression of a malignant growth than of a papilloma. The growths were so small that the hoarseness seemed quite out of proportion to their size. It was extremely difficult to make out any further details, as the view into the larynx was always only a matter of a second, whilst he was catching his breath. Seeing his age, the probability of the growth being malignant seemed greater than that of simple papilloma; but whatever the growth, it seemed clear that external operation would be unavoidable in view of the unusual difficulties owing to the anatomical configuration of the larynx. The patient was advised to that effect, but it was proposed that he should see either Mr. Butlin, or, as he was about to go to Edinburgh, Dr. McBride, the President of this Society.

The patient not only followed this advice, and saw Mr. Butlin,

but when he had obtained an opinion from him similar to his own (Sir F. Semon's), went and saw Dr. Greville MacDonald, who very kindly wrote on May 29 that he had expressed his opinion somewhat diffidently as to the nature of the case, and had very strongly advised an intra-laryngeal operation for the sake of substantiating the diagnosis. This view was also taken by Mr. Charters Symonds, who was more hopeful than Dr. MacDonald that the disease might possibly be benign. Dr. MacDonald then removed a piece of the growth intra-laryngeally on May 25, which on microscopic examination was found to be a typical epithelioma.

Before performing a radical operation the patient was sent, in view of his chronic and considerable albuminuria, to Sir William Broadbent, who wrote that he did not think that the albuminuria would be a bar to the operation, in view of the high specific gravity of the urine, and in view of the fact that the renal affection had not interfered with tissue nutrition, since he gained a stone in weight at Cannes, and in view of the fact that there was no serious arterial degeneration.

Thyrotomy was performed on June 14 of this year, when the affection was found to be much more extensive than any of those who had seen the patient had anticipated. The whole of the anterior and lateral walls of the larynx in the region of the vocal cords was one mass of disease; the vocal cords were involved in by far the greater part of their length, particularly the right one, where the disease extended nearly to the arytaenoid cartilage, and also implicated the ventricle of Morgagni. The left vocal cord was found to be affected in its entire anterior half; the disease extended to a considerable distance into the subglottic cavity, and had already perforated the crico-thyroid membrane in the shape of two or three little knobs in front of that structure. On the other hand, the thyroid cartilage was fortunately found not to have become involved on either side, and it was possible to strip off the diseased mass on both sides. The cartilage appeared white and glistening. The basis was well scraped, and the crico-thyroid membrane removed *in toto*. The patient bore the operation, which lasted nearly two hours, very well, except that the breathing at various stages of the operation was very curious, sometimes extremely intense, and at others very shallow, and again recalling the Cheyne-Stokes type. His pulse was very rapid (122) and easily suppressible. He sweated profusely after the operation, and spontaneously passed 32 oz. of urine during the first twenty-four hours, which with a specific gravity of 1026 contained a good

deal of albumen, but not more than before the operation. The temperature was  $101.2^{\circ}$  the first night, and  $100^{\circ}$  the following morning. He was able to take fluid food by the mouth on the first day, and on the second day the lower part of the wound, which was left open immediately after the operation, was closed.

Seeing the wide extent of the disease, he (Sir F. Semon) was of course not over-sanguine with regard to non-recurrence in this case, and told the patient's brother so immediately after the operation. The patient made a good recovery, and left the home about three weeks after the operation with the wound almost entirely closed, except in the middle part, where a small opening still remained. His albuminuria had greatly decreased, and the bronchial catarrh, from which previous to the operation he had considerably suffered, had much diminished. He went first to the seaside, and afterwards to Scotland. The last time he was examined before leaving was about three and a half weeks after operation, when the large internal wound was seen to be freely granulating, and there was apparently no recurrence of the disease.

The growth removed was submitted to Mr. Shattock for microscopic examination. His report completely corroborated the diagnosis made after Dr. MacDonald's intra-laryngeal operation, viz. that the growth was a squamous-celled carcinoma.

On August 10 he received a letter from the patient, dated from Blair Atholl, telling him that during the last few days he had been suffering from increasing breathlessness, which had at times been rather threatening. The patient was advised either to return to town immediately as he (Sir F. Semon) was about to leave for his summer holiday, or to seek specialistic aid at Edinburgh or Glasgow.

The patient, however, did not immediately follow this advice, and only came to town after the difficulty in breathing had further increased, on September 1. He then saw Mr. Ewen Stabb, who had kindly assisted at the operation. Mr. Stabb reported that there was distinct inspiratory stridor, increased on exertion, and that externally there was nothing to be seen or felt. Laryngoscopic examination was most difficult, but a distinct greyish mass of apparently granulation tissue was seen in front, and on the left side projecting into the lumen of the larynx. As the dyspnoea increased Mr. Stabb saw the patient in consultation with Mr. Butlin on September 19, when there was no doubt that the condition, which had altered very much, represented recurrence of the disease. The surface was now warty, and the growth more extensive.

On September 21 Mr. Stabb reopened the wound, Mr. Waggett assisting, and Mr. Tyrrell giving the chloroform. He first introduced a Hahn's tube, and then reopened the thyroid cartilage in the middle line. It was then seen that there was recurrence on both sides of the middle line in front. The growth was more extensive on the left side, and distinctly limited in its area, the attachment almost pedunculated. The posterior portion of the larynx appeared quite healthy. The centre of the attachment corresponded to where the crico-thyroid membrane had been. Mr. Stabb first cleared out the whole of the soft parts completely except a strip of mucous membrane about half an inch wide on the posterior wall, then on each side he separated the soft parts from the cartilage, keeping well away from the latter, and finally removed on each side a U-shaped portion of the laryngeal framework, including the lower part of the thyroid alæ and the anterior half or more of the cricoid cartilage, and a small portion of the upper part of the trachea. It appeared to him, and to Mr. Waggett, that nothing would be gained by removal of the whole larynx, the upper part of which was seen to be perfectly healthy. As he included in the parts removed the soft parts outside where the crico-thyroid membrane had been, there seemed justified hope that everything diseased had been exterminated. The patient made a good recovery, and had so far remained free from fresh recurrence. The growth removed at the second operation was examined by Mr. Shattock, and was found to be in every respect similar to that removed on the first occasion.

*Remarks.*—The case was noteworthy from more than one point of view.

1. In the first place it showed that chronic albuminuria and bronchial catarrh were not necessarily contra-indications to radical operations of this kind.

2. Although he was quite accustomed to find the disease much more extensive on opening the larynx than it appeared from laryngoscopic examination, he frankly confessed that he had not the remotest idea of the enormous extent of the disease in this case, and his surprise on discovering it was shared by Mr Butlin and Dr. Greville MacDonald when he communicated to them the facts ascertained during operation.

3. At the time of the first operation he entertained, as stated, fears as to recurrence, owing to the wide extent of the disease; but he certainly should not have expected such recurrence to take place in the very region in which he had most energetically removed everything that appeared to be diseased, viz. in that of the crico-



thyroid membrane. In this respect the case taught again the well-known lesson that, if once the disease had got outside the precincts proper of the larynx, the danger of recurrence was much greater than if it was still confined to them.

4. The present result illustrated the fact that even under such circumstances one ought not to despair, but try to improve by further operation, the extent of which would, of course, in each case vary with the particular requirements, the results of the first interference.

He should consider it his duty to report at some future time the further progress of this case, the more so as the danger of renewed recurrence was of course by no means over.

DR. HERBERT TILLEY showed a *Case of Complete Nasal Obstruction on the Right Side due to Chronic Dental Abscess arising from Root of Incisor Tooth, and forming an External Fluctuating Swelling below Right Nasal Bone. Two Years' Duration.*

Patient was a man aged thirty-four years. Two years ago he complained of complete nasal obstruction on the right side, with some swelling on the outer side of the nose. It caused no pain. The galvano-cautery was applied to the anterior end of the right inferior turbinal on two or three occasions, but without any improvement.

When first seen on November 10 the entrance to the right nasal cavity was seen to be filled by a fleshy, congested mass, resembling in its contour a much enlarged anterior termination of the inferior turbinal body; but it was more resistant than the latter, and did not appreciably diminish under the influence of a 20 per cent. solution of cocaine. An adhesion bound it to the nasal septum. The external swelling fluctuated, but was not congested nor painful, and its edges "crackled" on deep pressure. Puncture of the swelling internally by means of a hollow needle was followed by a discharge of dark serous fluid containing cholesterol crystals.

The right incisor teeth were both "dead," and over the buried root of the outer one a small suppurating fistula leading towards the apex of the root was found. Under general anæsthesia the anterior end of the right inferior turbinal was removed, and also the incisor teeth. A probe could then be passed through the socket of the outer root, and made to project just below the right nasal bone. The patient made an uninterrupted recovery.

The fact that an adhesion existed between the anterior end of the swelling and the septum seemed to bear out the remarks made by the speaker at the last meeting, viz. that when after the appli-

cation of cocaine to a turbinal body it was impossible to apply the galvano-cautery to it without "scorching" or touching the opposing surface of the septum, *de facto* it was not a case in which the cautery should be used.

The PRESIDENT did not understand whether the swelling contained pus or not. He had seen cases of this type in which the swelling occurred in front of the antrum; in some of these the swelling went into the nose and obstructed it in part. Those he had had to deal with contained serum and not pus. He took out the lining wall, crushed in the bony wall, and left it alone afterwards.

Dr. DONELAN showed a *Specimen and Temperature Chart from a Case of Epithelioma of the Pharynx under Treatment with Otto Schmidt's Culture*.

The specimen consisted of two sections taken from the floor of an ulcer situated on the right faucial pillars and right side of velum palati and uvula. It was an ordinary squamous epithelioma. The exhibitor did not enter into the history of the patient, as he hoped to show him at a later meeting, except to say that he had had syphilis twelve years ago. When first seen he had this ulcer and a large tumour about the size of an orange beneath the jaw and extending backwards into the parotid region. Energetic antisyphilitic treatment was tried for a week, the effect being to improve and almost heal the ulcer, and to diminish considerably the size of the tumour, probably by absorption of inflammatory products. A mass of stony hardness was now left. The present specimen was prepared by Mr. Aslett Baldwin, and the patient was also seen in consultation by Mr. George Cheate and Sir Felix Semon, who all regarded the case as hopeless, and advised against an operation except as a desperate attempt to prolong life for a while. The patient, having heard of Dr. Otto Schmidt's cancer culture, was desirous of trying it, and Drs. Schmidt and Jossé Johnson were communicated with. On the clear understanding on the part of the patient that this treatment was still in the experimental stage, it was commenced on November 13, being the first case treated in England. A 1 per cent. solution of the culture was used, and of this 0.2 milligramme was at first tried, the reason for so small a dose being that the amount of fresh-formed secondary deposit in the body was unknown, and one had to guard against a violent reaction, perhaps in the neighbourhood of vital structures. No reaction followed until the fifth day, when 3 mgms. were given, and a marked local

but no febrile reaction took place in about sixteen hours after the injection. The growth swelled up to the size it had attained before the iodide was administered, but became much softer. The patient, who had been completely free from pain during the whole course of his disease, now complained of pain in the growth itself, radiating from it up to the head, into the ear, and along the right side of the tongue and towards the shoulder. There was a corresponding swelling of the right faucial pillar and right side of velum and uvula. The treatment was suspended for four days, and resumed on November 22, beginning with 1 mgm., the dose being gradually increased to 4 mgms. on the 25th, when he was seen in consultation by Dr. Otto Schmidt, who considered the case a very favourable one for the exhibition of the culture, the cancerous deposit being so recent. He ordered a second dose of 7.5 mgms. within fourteen hours of the preceding, when a very marked local reaction occurred. The dose was now steadily increased to 3 centigrammes, when there was, for the first time, a slight rise in temperature (99.6° F.).

The reactions in this case occurred at first in from fourteen to sixteen hours, but took longer in appearing the more the culture was pushed. It was claimed that this was due to the increased formation of antibodies and commencing establishment of immunity. It was, of course, impossible to say yet whether this treatment had any curative properties, but that it had a marked selective action on cancerous material must, he thought, be admitted. In this case a supra-clavicular gland, which could not be felt before the injections were given, swelled up and became painful, showing that it was the site of metastasis. It was the only gland so affected, and after about a week of the treatment it gradually subsided. The action of the culture was most marked on the outer limits of the cancerous tissue, where the newest cancerous cells might be expected; it did not appear to have much effect in the older portion, with which the natural antibodies had been dealing longer. From this it might be inferred that the serum would be of most use where the disease was of recent date, and where the constitutional power of producing antibodies had not been exhausted by prolonged cachexia. The condition of this patient, it must be admitted, was greatly improved both generally and locally. Renewed hope, of course, counted for much of the former, but it could not be denied that there was a distinct diminution in the size of the tumour. It was not expected that the tumour would entirely disappear, only that it would be rendered an inert mass of fibrous tissue.

The exhibitor handed in the specimen for the Morbid Growths Committee, and undertook to present a further report of this case.

Mr. HUNTER TOD showed a *Macroscopic Specimen of Epithelioma of Nasal Septum removed from a Man aged Fifty-four : Patient present.*

This patient was first seen by Mr. Tod on May 15. There was a three months' history of nasal obstruction on the left side, accompanied by intermittent lancinating pain in the upper incisor teeth.

The obstruction was due to a firm but indefinite swelling on the left side of the septum, which prevented a view of the interior of the nasal cavity. The post-nasal space was normal. There were no enlarged glands. There was no history of syphilis. To exclude a gummatous infiltration of the septum, potassium iodide was administered in large doses for a week. This caused sufficient diminution of the swelling to permit a large ulcer, with raised everted edges, occupying the anterior and middle portions of the septum, to be defined. The septum alone appeared to be involved. A piece of the edge of the ulcer was removed, and examined microscopically. It was an epithelioma. The growth was removed by operation in the following week. An incision was carried through the soft tissues, beginning at inner third of the lower eyelid, proceeding towards the nose, and thence to the anterior extremity of the left nostril. The soft parts were reflected. The growth was much larger than anterior microscopy seemed to show. Part of the nasal bone and nasal portion of the superior maxilla had to be removed to fully expose the posterior limit of the growth. The septum was removed *in toto*, with the exception of its superior and posterior margin. The outer wall of the nasal fossa appeared normal. The floor also appeared normal, but as a precautionary measure all the mucous membrane of the floor was thoroughly curetted away, leaving the bone quite bare. A five per cent. solution of supra-renal extract prevented all bleeding during the operation. The nose was packed and the skin wound sutured. The patient left the hospital within ten days. Two months ago (three and a half months after the operation) a swelling appeared on the left side of the nose externally, in the line of the operation wound. Within a week this swelling had extended into the interior of the nose, involving the outer wall above the inferior turbinate bone.

Mr. Tod asked if this were a recurrence of the epitheliomatous growth, or merely inflammatory. He presumed it probably was a recurrence, but was puzzled by its situation, owing to the original growth having apparently been limited to the septum. Also the



existing swelling had appeared very suddenly, increased rapidly, and several times had diminished appreciably in size, only to increase again.

The PRESIDENT said this was a condition demanding a very complete operation if anything was to be done at all. The opinion of the Society seemed to be in favour of recurrence. He called attention to the fact that the swelling was still limited to the nasal cavity.

Mr. DE SANTI said this was undoubtedly a recurrence, and not an inflammatory process, and that the disease now involved the superior maxillary bone on that side. If anything were to be done nothing short of a very extensive surgical procedure, such as removal of the upper jaw, would be of any avail.

Mr. TOD, in reply, said he accepted the general opinion expressed that there was a recurrence. He mentioned that he had incised the existing swelling from within the nose, and it was evidently solid.

[Since the meeting, sections taken from portions of the growth proved it definitely to be epitheliomatons.]

(To be continued.)

## NOTES.

### THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.

At the annual meeting held on December 7 the following members were elected as officers and members of Council for the ensuing session, 1903 – 1904: *President*: Thomas Barr. *Vice-Presidents*: Charles A. Ballance, Alphonso Elkin Cumberbatch, John B. Story. *Hon. Treasurer*: Edward Law. *Hon. Librarian*: E. Cresswell Baber. *Hon. Editor of "Transactions"*: W. Jobson Horne. *Council*: Urban Pritchard, William Milligan, H. Secker Walker, Arthur H. Cheatle, Macleod Yearsley, E. B. Waggett. *Hon. Secretaries*: Herbert Tilley, Hugh Edward Jones.

### LARYNGOLOGICAL SOCIETY OF LONDON.

The following have been elected officers and members of Council for 1904: *President*: P. McBride. *Vice-Presidents*: A. Bowlby, Percy Kidd, Charters J. Symonds, Wm. Milligan. *Hon. Treasurer*: W. R. H. Stewart. *Hon. Librarian*: StClair Thomson. *Hon. Secretaries*: E. Furniss Potter, P. de Santi. *Council*: Wm. Permewan, R. Lake, L. A. Lawrence, L. H. Pegler, J. Walker Downie, James Donelan.

## Abstracts.

## FAUCES.

**Caiger, F. Foord.**—*An Address on the Diagnosis and Management of Doubtful Cases of Diphtheria.* "Lancet," December 26, 1903.

This address was delivered to the Medical Officers of Schools Association in November. After referring to the ease with which well-developed attacks of diphtheria can be detected, and the havoc which may ensue upon the non-recognition of nasal and other ill-defined cases, the author points out that at the present day the nature of a doubtful attack is practically determined by the result of bacteriological examination. At the same time considerable difficulty arises in the identification of the bacillus, owing to our uncertainty as to the limits of intra-normal variation. He then enters into the question as to whether, under favourable conditions, the Hofmann bacillus is capable of developing into a true diphtheria bacillus, showing that so far the balance of opinion is opposed to this being possible. From the point of view of diagnosis, Caiger thinks it most desirable that an organism whose morphology, staining, and cultural reactions—especially the power of producing acid in glucose broth—are similar to those of Loeffler's bacillus, should be classed as diphtheritic, and should the mucous surface from which the organisms have been derived present any, even the slightest, sign of inflammation, the case should be diagnosed as diphtheria accordingly. He attaches very little value indeed to a negative bacteriological result, and points out the errors which may cause a failure to detect the bacillus.

But in spite of the disabilities which detract from the authority of the bacteriological test, and the fact that it is therefore to be considered as subsidiary only where clinical symptoms are distinctive, it is of the highest importance in anomalous cases.

As regards the treatment of doubtful cases of diphtheria, Caiger advises the immediate adoption of the following precautions:—(1) Isolate the patient. (2) Disinfect everything which he is likely to have worn, touched, or handled, and also the room in which he has been sleeping immediately before the attack. (3) Examine the throats and nasal passages of all persons with whom he has been in especially close contact, such examination, if possible (and in a school it always should be possible), to include a bacteriological examination. (4) Isolate, or at any rate exclude, all "contacts" who are found to harbour even doubtful diphtheria bacilli in their mucous membranes and all (even though a bacteriological examination proves negative) who present any suspicious appearance of the throat and nasal fossæ. (5) Search for any other possible source of infection besides a previous case of diphtheria, not only as serving to explain the present attack, but as a possible cause of fresh cases. (In this connection the possible agency of milk, drinking utensils, cats, wind instruments, etc., should be the subject of careful inquiry). (6) Do everything which may possibly serve to lessen the infectivity of the patient, and thus shorten the period of necessary detention.

These precautions are discussed in detail, and, finally, the author is not prepared to recommend the indiscriminate adoption of antitoxin injection as a prophylactic measure in cases of apparently healthy "contacts" living under skilled observation simply because diphtheria bacilli are present in their mucous membrane; but it should always be

given without exception in the case of an infected "contact" who presents any, even slight, indication of faucial, nasal, or laryngeal inflammation.

*MacLeod Yearsley.*

## NOSE, Etc.

**Lautman.**—*The Rhinological Treatment of Dysmenorrhœa according to Fliess.* "Annales des Maladies de l'oreille, etc.," September, 1903.

Fliess has pointed out that the genital points in the nose are the tuberculum septi and the anterior head of the inferior turbinate. The application of cocaine to these points during menstruation in many cases is followed by an amelioration of pain; the pain in the sacrum is relieved by touching the tuberculum septi, that in the hypochondrium by touching the head of the inferior turbinate.

The author quotes several cases which confirm Fliess' deductions, and recommends in all cases to try the effect of cocaine before using the cautery.

*Anthony McCall.*

**De Champeaux.**—*The Cure of Tic Douloureux.* "Archives Internationales de Laryngologie, etc.," July—August, 1903.

The author reports the case of a woman who had suffered from facial neuralgia for several years, and who had undergone several forms of treatment without success. From the presence of crusts in the nose, and the expression of the face, he suspected the presence of adenoids; on these being removed the rhinitis as well as the tic douloureux were cured.

*Anthony McCall.*

## EAR.

**Kerrison, Philip D.**—*The Limits of Variation in the Depth of the Mastoid Antrum.* "Arch. of Otol.," vol. xxxii, No. 3.

The difference in the measurements given by various observers seems to depend mainly on the point from which they take these measurements. They are much less when taken directly inwards at the space just behind the suprameatal spine, and much greater at Broca's point of measurement, which is a full centimetre behind it, and the line of measurement has to run a long way forwards and inwards.

It will be remembered that the antrum runs from the tympanic attic obliquely backwards and outwards, and is therefore found at a lesser depth than the inner end of the posterior wall of the osseous meatus. The average length of this wall is, according to Kerrison, 14.7 millimetres, the average depth of the antrum about 11 millimetres, and never exceeding 15 millimetres. The author objects to Broca's point for operating on account of the additional depth of the bone to be chiselled through, and also on account of the risk of injuring the lateral sinus. He found that in two out of a series of fifty bones the groove was so placed that it would be impossible to operate by Broca's method without injuring the vessel. In operating from the triangle close behind the suprameatal spine, the extreme limit of safety should be regarded as 15 millimetres, or  $\frac{5}{8}$  inch.

*Dundas Grant.*

**Randall, B. A., and Potts, Barton H.** (Philadelphia).—*Intradural and later Double Cerebral Abscess complicating Chronic Tympanic Suppuration; Operations; Cure.* "Arch. of Otol.," vol. xxxii., No. 3.

A child aged four, with a history of left-sided otorrhœa for two years, had mastoid symptoms, headache, and vomiting for two days. Violent convulsions ensued most markedly on the right side, involving also the muscles of the face and right eye. Under chloroform the movements were quieted, except those of the right arm and leg. Lumbar puncture evacuated between 3 and 4 ounces of clear fluid under pressure, giving temporary relief.

The mastoid operation was carried out, and the middle cerebral fossa was found open, with a perforation of the dura mater. This was sutured and dressed. On the next day there was paralysis of the right arm and leg. On the fifth day protrusion of pulsating brain substance. On the tenth day the temperature rose with the proportionate degree of rise of pulse-rate. On the sixteenth day vomiting, involuntary micturition, and semi-stupor came on.

The brain was explored for abscess, pus was evacuated, and the cavity, after irrigation with boric acid solution, was plugged with iodoform gauze. Three days later the pulse dropped again, and on removing the gauze 6 drachms of pus from a second cavity escaped. Drainage by soft rubber catheter was then substituted for gauze plugging.

*Dundas Grant.*

**Spalding, J. A.** (Portland, Me.).—*Tinnitus; with a Plea for its more accurate Musical Notation.* "Arch. of Otol.," vol. xxxii, No 4.

He recommends noting the pitch by means of the pianoforte and observing the effect on the patient of the sounding of the note on the piano. In some cases the effect is unpleasant, or even painful; in others agreeable. In the former case he thinks the tinnitus is due to obstructed conduction; in the latter it is more probably labyrinthine. He refers to some of the less well-known remedies for tinnitus, such as the hypodermic or intra-muscular injection of ergot, the mastoid application of glycerole of iodine, local application of dry heat, etc. He prefers pneumatic massage to be carried out by the mouth rather than by a mechanical motor pump.

*Dundas Grant.*

**Breyre.**—*Anæsthesia of the Ear.* "Archives Internationales de Laryngologie, etc.," July—August, 1903.

Where the tympanic membrane is intact M. Breyre advises the use of menthol, crystallised carbolic acid, and cocaine, in equal parts, stating that the anæsthesia produced is greater than where a twenty per cent. solution of cocaine is used alone.

A ten per cent. solution of choral hydrate applied to an acutely inflamed tympanum gives considerable relief, as the membrane is much more absorbent than when normal; for this reason the cocaine mixture in those cases, and also where chronic suppuration is present, must be used with caution. For exostosis and mastoid operations, a general anæsthetic is advisable.

*Anthony McCall.*

**Delsaux, V.**—*Facial Paralysis of Otic Origin.* "La Presse Oto-laryngologique Belge," January, 1902.

One case is recounted which occurred in a man, aged thirty-five, during acute catarrh of the middle ear following influenza. The otitis yielded to



treatment in six days, and the facial paralysis disappeared in three weeks.

While this complication is rare in acute otitis media, it is not so uncommon as the result of chronic suppuration. Paralysis à *frigore*, the author considers, cannot invariably be attributed to acute catarrh; all such cases should, however, be examined by an aural specialist.

The possibility of deciding the precise point at which the nerve is injured in any case, is discussed at length. Finally a description is given of a procedure recommended by Chipault, for exposing the facial nerve from the stylo-mastoid foramen to the threshold of the aditus in cases where it is desirable to free it from sequestra. *Chichele Nourse.*

**Chavasse and Mahu.**—*On Lumbar Puncture in Endocranial Complications of Otitis.* "Revue Hebdomad. de Laryngol., etc.," October 24, 1903.

This paper is a *résumé* of the report presented by the authors to the Société Française d'Otologie, etc., in October, 1903.

They first give a short history of the operation since its introduction by Quinke, of Kiel, in 1890; then describe the technique of the operation, and the technique of the examination of the fluid drawn off. Under the latter heading they deal with (1) the pressure under which the fluid escapes; (2) the colour of the fluid; (3) the bacteriological examination, in which, of course, a positive result is of extreme value, whilst a negative result is of no value at all; (4) the cyto-diagnosis. Some of the fluid is centrifugalised, and the deposit examined under the microscope. Healthy cerebro-spinal fluid contains one or two lymphocytes in each field, but if the meninges (*i. e.* arachnoid or pia) are irritated or inflamed, lymphocytosis or polynucleosis appears. Lymphocytosis is found principally in chronic meningeal processes, such as tabes, disseminated sclerosis, syphilis, also in tuberculous meningitis. Polynucleosis occurs in acute non-tuberculous meningitis during the acute stage, whilst later, during recovery, the polynuclear leucocytes are replaced by lymphocytes, which finally disappear. In cases of cerebral tumour, hysteria, "meningisme," neurasthenia, thrombo-phlebitis of the sinus, and in uncomplicated cerebral abscess, the cerebro-spinal fluid remains normal.

In a few exceptional cases some information may be gained by examining the chemical constitution of the fluid, its freezing point, and its powers of laking blood.

The authors next consider in detail the diagnostic value of lumbar puncture, then its therapeutic value, and finally sum up the paper in the following conclusions:

1. Lumbar puncture is a valuable method of diagnosis in cases of intra-cranial complications of ear suppuration, provided that the cerebro-spinal fluid be examined as to its colour, its bacteriology, and its cytology. If performed with the patient lying down, and no aspiration used, it is almost free from danger.

2. Both positive and negative results must be taken into consideration, as also the clinical conditions and the stage of the disease at the time the puncture is made. The influence of certain general diseases on the constitution of the fluid must not be forgotten.

3. In the great majority of cases, if the fluid is turbid (or even if it is clear), and contains either bacteria or polynuclear leucocytes, or both, it indicates the presence of a bacterial meningitis. If the fluid is clear, and contains lymphocytes in quantity, it indicates usually tuberculous meningitis; the diagnosis is of course certain when Koch's bacillus is

found. But lymphocytosis is also found in other chronic meningeal affections, and during recovery from acute meningitis, specially cerebro-spinal meningitis.

4. In extra-dural and sub-dural suppuration the fluid remains normal so long as the arachnoid membrane is not irritated.

5. In circumscribed meningitis the results of lumbar puncture are not yet of much value.

6. In brain abscess, in thrombo-phlebitis of the lateral sinus, and in serous (non-bacterial) meningitis the fluid is clear and normal, but often increased in quantity and at a higher tension, specially in the latter two conditions.

7. In "labyrinthism" and "meningism" the fluid is normal.

8. After traumatic lesions of the labyrinth or base of the skull, causing ear symptoms, red blood-corpuscles are generally found in the cerebro-spinal fluid.

9. Operation should never be put off because of the conditions found in the fluid; as a rule the operator will be enabled to start with a precise object in view.

10. The therapeutic value of lumbar puncture is not great; nevertheless, considering the results obtained in general medicine, and in some cases of otitic meningitis, puncture may rightly be performed along with the surgical intervention.

11. Lumbar puncture has demonstrated the curability of certain cases of meningitis.

12. Examination of the cerebro-spinal fluid, specially as regards its contents in leucocytes, constitutes a great step forwards in the diagnosis of intra-cranial complications of otitis, and ought to be more generally employed.

Arthur J. Hutchison.

**Mercier-Bellevue.**—*A Case of Extra-dural Abscess following Acute Otitis Media.* "Revue Hebdom. de Laryngol., etc.," October 17, 1903.

Mrs. M R—, aged thirty-five, came to the author March 30, 1902, complaining of violent headache and slight diplopia. Whilst suffering from influenza she began to have severe earache. The pain was intense, but about the eighth day diminished; at the same time profuse fetid discharge appeared in the right ear. Three days later the quantity of discharge diminished, and acute headache spreading over the right side of the head set in, and was soon followed by diplopia. When first seen by the author there were very severe headache, marked diplopia, loss of appetite, insomnia, slight fetid otorrhœa in right ear, but no fever. A small perforation was found in the postero-superior segment of the membrana tympani; the auricle was slightly raised from the side of the head and depressed. Tenderness over the antrum existed only on firm pressure, but was more marked over the tip of the mastoid. The patient would not permit any operation.

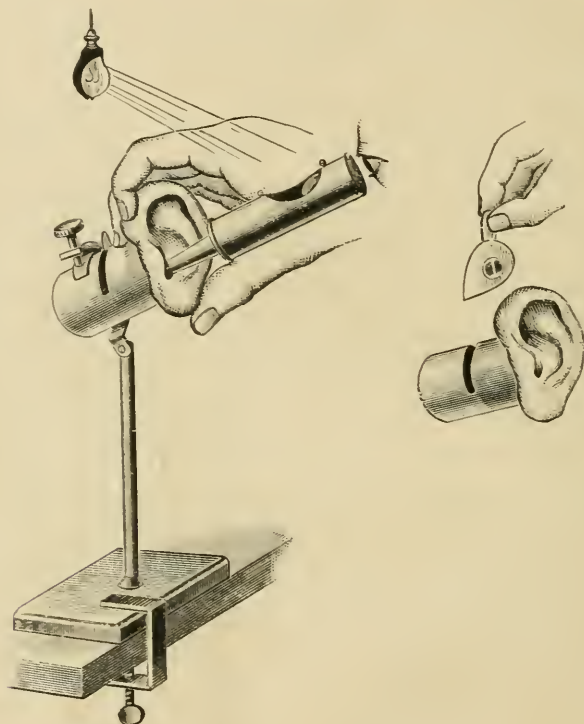
Two days later the headache was even more severe and the diplopia more marked, to which were added a condition of languor and malaise, slight nausea and vertigo. The pulse was slow, strong, and regular: the fundus oculi was normal, but there was paralysis of the external rectus. Next day the author operated on the right mastoid, and found the antrum and practically the whole mastoid process packed with granulations and pus. The tegmen antri was necrosed, and a small fistula in it led into an abscess cavity in the middle fossa, which, after free removal of the tegmen, was found to be extra-dural. Recovery complete.

Arthur J. Hutchison.

## NEW INVENTION.

**Model Ear for the Practice of Otoscopy.** F. DAVIDSON, 140, Great Portland Street, London, W.

WE have much pleasure in drawing the attention of our readers, whether teachers or students, to an artificial ear into which can be inserted tympanic pictures representing various typical normal and diseased conditions. The pictures have been most judiciously selected, and present, under illumination, a remarkably life-like appearance. By an



ingenious arrangement the meatus, when examined, has to be straightened by drawing the auricle upwards and backwards, so that the examination is almost absurdly natural, and cannot fail to expedite the tiro's endeavours to acquire dexterity in otoscopy. There is, of course, no school like that of experience, but it has been said that the fees are extremely high; the period in schooling in this subject may be greatly shortened by the use of such an apparatus as Mr. Davidson's model ear, and there can be no difference of opinion as to the advisability of the beginner practising his first steps upon such an inanimate object as this than upon the unhappy patients who too often go through much suffering during the attempts of the inexperienced to acquire the *tactus eruditus*. On humanitarian as well as technical grounds we recommend this admirable model most highly.

THE  
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RHINOLOGY; AND OTOTOLOGY.

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**PRESIDENTIAL ADDRESS TO THE OTOTOLOGICAL SOCIETY  
OF THE UNITED KINGDOM.**

Delivered February 1, 1904.

By THOMAS BARR, M.D.,

Senior Surgeon, Glasgow Hospital for Diseases of the Ear; Lecturer on Aural Surgery, University of Glasgow, etc.

GENTLEMEN,—I beg first to tender you my most sincere thanks for the high honour you have conferred upon me in electing me as your President. I can assure you that, while conscious of the difficulty of coming after two such distinguished predecessors, it will be my earnest endeavour to maintain the high position which this Society has already achieved. Residing as I do so far from the Metropolis, I shall not have the advantage, enjoyed by the previous occupants of the Chair, of being in constant personal touch with the office-bearers and members in London. With your kindly forbearance, however, and the support and guidance of my good friends the Secretaries I hope this disadvantage will not prove a hindrance to the work of the Society, and that we shall go on "Still achieving, still pursuing."

The published "Transactions" bear witness to the amount and excellence of the work done during these four sessions, and the Society has undoubtedly amply fulfilled its *raison d'être*. The remarkable development in the pathology, diagnosis, and operative treatment of purulent diseases of the ear and of their complications has of late years largely monopolised the thoughts and efforts of



otologists, overshadowing, perhaps unduly, other departments of our subject. The improvements in the operative treatment of the middle-ear spaces, with which the names of Stacke, Küster, Schwartze, Ballance, and others have been identified, have gone hand in hand with the brilliant developments of otitic intracranial surgery inaugurated in 1886 by Barker, Caird, and Macewen. It is not surprising therefore that the great bulk of the material brought before the Society has hitherto referred to these affections.

Of the 144 papers, demonstrations of cases, specimens, and discussions contained in these "Transactions," I find that eighty-six, or 60 per cent., relate to purulent diseases of the ear or their intracranial or intravascular complications. Another class not less frequently met with in practice is conspicuous by its absence from these "Transactions," namely, *the non-exudative or interstitial inflammations of the middle ear*—including the dry catarrhal and sclerotic groups,—affections which bulk so painfully in our daily practice.

While these have not the surgical interest of the purulent varieties, their great frequency, their intractable character, and their distressing concomitants render them well deserving our earnest attention. The lives of the sufferers may not be menaced as in the purulent cases, but their happiness, their usefulness, and their life prospects are profoundly affected by the loss of hearing and the distracting noises from which they usually suffer. These are the cases to which we so often apply all our experience, all our skill, and all our knowledge, with results which are frequently rather discouraging both to ourselves and our patients. Yet, when our efforts do prove partially successful, when the hearing is improved, when the harassing sounds are removed or diminished, the patient frequently exhibits keener feelings of gratitude than are evoked by the cure of a purulent discharge, the danger of which he rarely realises and consequently the cure of which he seldom adequately appreciates. We must all frankly admit that hitherto progress in the treatment of these cases has been unsatisfactory, compared with that of the purulent forms. The question is, can we as a Society do anything to expedite this progress and to remove the burden of the reproach under which we lie in connection with the treatment of these affections? Can we by investigation and discussion, conducted on the definite scientific lines laid down by this Society, help to define more clearly the true value of present methods of treatment, or happily devise new and improved ones? For example, what are the true value and limitations of inflation of the middle ear in this class of cases, of applications to

the tympanic cavity through the Eustachian catheter, of the Eustachian bougie, of electrolysis of the Eustachian tube, of so-called air-massage of the tympanum, of intra-nasal treatment, of high frequency electric currents now being tried? Might we not discuss with advantage the true position of the operative treatment of these cases? How do we stand in regard to cutting operations on the tympanic membrane or on the intra-tympanic structures? Has the proposal to open the labyrinth by perforating the inner tympanic wall borne any fruit; or has the attempt to deal surgically with the intra-tympanic and intra-labyrinthine contents by way of the radical mastoid operation led to any satisfactory result? You may remember that at our meeting in May, 1901, high expectations were aroused by a case in which the grafting of a cavity in the labyrinth seemed to have strikingly improved the hearing, and several speakers expressed the opinion, based on this case, that a new era had begun in regard to the treatment of the dry forms of deafness. I fear, however, that subsequent silence on this matter has been ominous of unfulfilled hopes. If operative treatment has so far not been conspicuously successful in improving the hearing in these cases, may we yet hope to relieve by such means the subjective sounds which so often spoil the patient's life? A man recently presented himself harassed with violent throbbing in his left ear, heard by auscultation as a distinct bruit and entirely stopped by pressure behind the mastoid and over the carotid. As he heard better when the pulsation ceased, he was in the habit, when listening to anyone, of pressing with his finger upon the spot behind the mastoid. How clear seemed the indications here for operative treatment, and with confident expectation the external carotid artery was ligatured by a general surgeon. With the return of consciousness returned the harassing pulsating sound, and he was again able to stop it by pressure even through the bandages. A second operation was performed in which the vessel situated underneath the spot upon which pressure relieved the pulsation, probably the posterior auricular artery, was ligatured, with unfortunately a similarly negative result, and the patient returned to his home with his throbbing tinnitus unrelieved. Again, a man suffered for years from left-sided deafness, loud whistling tinnitus, and latterly such violent giddiness and staggering as to utterly unfit him for work. All ordinary methods of treatment had been tried without appreciable effect, and at last he was advised to have his auditory nerve severed at the internal auditory meatus. This, which also involved the cutting of the facial nerve, was carried out by one of our Glasgow surgeons in a protracted operation. The

effects were disappointing, the giddiness for a few days as he lay in bed was worse than ever; at present, nearly two years afterwards, the tinnitus and staggering remain pretty much as before, with the addition of absolute deafness on the side affected, as well as facial paralysis. Such failures suggest problems for investigation by this Society. In regard to the first case, may we not hope that with fuller investigation into the collateral circulation of the ear and of the actual seat of pulsating tinnitus we may yet be able to ligature in such cases with greater success? With respect to the second case, may further investigation enable us yet to discriminate a labyrinthine source of symptoms from an intracranial one? A monument surely awaits the man who finds an effective remedy, surgical or medical, for the hitherto incurable forms of tinnitus.

There is a very practical question in which the interchange of views by members of this Society would be very helpful in these forms of deafness, namely, the duration of treatment and the frequency of the visits of patients for treatment. This is a point upon which very different opinions and practice prevail. Some otologists are content with seeing the patient only once or twice, prescribing the use of Politzer's bag and the inhalation of sal-ammoniac vapour, and writing a letter to the family doctor expressing a very cautious, if not gloomy, prognosis. There are others, equally conscientious, who in such a case would see the patient daily or every second day for weeks, would regularly inject solutions through the Eustachian tube into the tympanum, would at frequent intervals employ so-called air-massage of the tympanum, would operate upon or cauterise the intra-nasal spaces, if even a slight deviation from the ideal normal were visible, and, after the conclusion of such a course, he would advise a shorter course of treatment, to be repeated once or twice a year. Of these two methods, the tendency in this country is probably towards the former, while on the Continent the method by frequently recurring treatment seems to prevail; at least, cases not unfrequently come under my notice in Scotland of patients who, after having received in this country the limited treatment, have gone to otologists on the Continent, where they received treatment daily, sometimes twice a day, for weeks. In this country we have a natural disinclination to involve patients in troublesome and prolonged treatment when we feel that the result may not appear to be such as to compensate the patient for the time and money expended on the process. One sometimes hears such a remark as "It was very good of Dr. So-and-so to tell me at the first visit

that nothing could be done for my hearing." But may we not sometimes err in dismissing the patient after a first examination as incurable, or in carrying out treatment in too limited or half-hearted a fashion? A young lady, whose father and two brothers are members of the medical profession, was under my care for progressive deafness, which seemed to belong to the sclerotic variety of middle-ear disease. It pursued the usual unsatisfactory course of such cases, although I had the advantage of the co-operation of the lady's brother, who had an unusually good knowledge of ear disease. On the whole, as the years went on the hearing seemed to become appreciably worse. Hitherto the so-called air-massage of the tympanum had been practised with Delstanche's speculum from time to time, but not at short intervals. One of the patient's brothers thought he would try this method in a more thorough fashion, and fitted up an electro-motor in his consulting-room, with which the treatment was repeated daily for weeks, to the extent of a thousand strokes a minute, with apparently very gratifying results. I saw the lady a week or two ago, and there seemed to be distinct improvement, attributed by both brother and sister to the frequent use of this air-massage. I felt that sometimes we may err in adhering to too limited and over-cautious methods in the treatment of these cases, and it would be very interesting and instructive if the opportunity were provided by this Society for the discussion of such a matter.

There is one more question. May we look forward to the time when this Society shall possess a permanent and ever-enlarging anatomico-pathological museum, to which members might resort for leisurely inspection and study? We have a library to aid us in our studies. Would it not be as appropriate to have a museum in which not books but the facts of Nature might be studied in the original, each specimen being "as a book where men do read strange matters"? And, just as the library is frequently enriched with donations of books from various sources, might we not expect similar enrichment of our museum not only from members of this Society, but from sources outside of it, both at home and abroad? If every specimen placed in such a museum by members of this Society were to have attached to it a clinical history of the patient, or a reference to a published paper bearing upon the specimen, its value would be vastly increased. There might be included a museum of instruments bearing upon our specialty, to which members would be expected to contribute instruments devised by themselves. Amongst other advantages, such a collection of instruments might at times reveal to a member who meditates the



introduction of a new instrument that his ideas had already taken a concrete form. When one recalls the museum, which was probably the great feature of the London Meeting of the International Otological Congress, one is impressed with the desirability of building up a permanent one in connection with this Society. What a magnificent centre of attraction and instruction for the otologists of the United Kingdom.

Gentlemen, there never has been a time in the history of otology in this country when so many able, earnest, and scientific workers have been engaged in the investigation of its problems. Here we have in this Society over one hundred workers, many of them fired with the enthusiasm of youth, from whose earnest efforts we hopefully anticipate important results, which will have far-reaching and beneficent effects on the community.

### LATENT OR INTERMITTENT NASAL OBSTRUCTION.<sup>1</sup>

BY MAYO COLLIER, M.B., M.S.LOND., F.R.C.S.ENG.,

Senior Surgeon to the North-West London Hospital; and Ex-President of the British Laryngological Association, etc.

MR. PRESIDENT AND GENTLEMEN,—The object of my communication to-day is to ask you to consider with me a condition of things within the nose that up to the present has scarcely been entertained by rhinologists, and certainly not with the apprehension that this condition was one of any moment or worthy of much consideration. I want to point out to you that there is a condition of things within the nose that is extremely common; that this condition, although extremely common, has escaped general recognition; that this condition of things is potent for harm, and is a source of many of the affections found within the throat, ear, nose, and post-nasal space.

The terms latent or intermittent nasal obstruction are sufficiently descriptive of the condition I wish to discuss with you this afternoon.

I suggest to you that, apart from the various forms of nasal obstruction due to growths, outgrowths, deflections, or what not, with which we are all familiar, there is a form of nasal obstruction that is more common and more harmful than all these put together.

<sup>1</sup> Communicated to the British Laryngological, Rhinological, and Otological Association, January 29, 1904.

This form of nasal obstruction is latent—that is to say, it may come on in a nose that is physiologically perfectly patent, and in which there is nothing abnormal to be seen. This form of obstruction may alternate with a condition of things in which the functions of the nose are perfectly performed, and yet for twelve hours out of the twenty-four the nose may be absolutely occluded, and the patient in a condition of extreme misery and discomfort.

This intermittent form of nasal obstruction often eludes recognition, and the surgeon is led astray because at the time of his examination the nasal chambers are perfectly free and patent, and the functions of the nose are perfectly performed.

I feel sure that no one present would resent the suggestion that more or less complete obstruction of the nasal chambers might be harmful to the individual, and might lead to ear, throat, or nose troubles. If you admit that constant nasal obstruction is in many cases a cause of ear, throat, and nose troubles, I am not straining your imagination when I ask you to believe that intermittent nasal obstruction is also powerful for harm in the same direction. Or, in other words, if continuous loss of the functions of the nose results in trouble in the nose, throat, and ear, I am here to contend that intermittent loss of the functions of the nose has a similar effect.

This, then, is the subject matter of my remarks to you to-day. In order to properly understand this question we must have a clear idea of what are the functions of the nose and how the physiology of this organ is related to the physiology of the surrounding organs and to the economy in general. The nose has important relations with respiration, with digestion, with audition, with speaking and singing, with taste and smell, with sight, and with the various emotional states. The nose may also be looked upon as a respiratory organ in itself, as it is certain that a considerable interchange of gases takes place in its recesses and cavities. There is also some reason to believe that the nose is the safety valve of the brain.

In order to fully appreciate the effects of the loss of the functions of the nose and the harm that may in consequence accrue to the individual we must first be in a position to appreciate their value. This can only be done by a careful survey and accurate knowledge of these functions as far as we are able. In order to obtain this we will discuss seriatim the nose in relation to the various functions I have enumerated.

And first of all with respiration and so through respiration with the circulation and oxidation of the blood. As baldly stated in the

physiology books, the nose warms, moistens, and filters the air, but how this is accomplished the writers of text-books have not attempted to explain. At first it is a little difficult to see how a stream of air some thirty or forty cubic inches in value can become warmed, moistened, and filtered whilst passing through the nose in the space of two seconds.

When, however, we examine the upper respiratory tract as a whole we see that it is not a channel or tube of one uniform calibre, but that it presents several remarkable constrictions that alternate with equally remarkable expansions.

We then begin to see that these constrictions prevent the very thing from taking place that we are told does take place, viz. that the air from the exterior passes directly through the nose from front to back and on into the lungs in a solid more or less cylindrical stream, and does not mix with its surroundings.

This is manifestly incorrect. If we look at the upper respiratory tract and view it as a whole, we shall be surprised at the variations that it presents.

Commencing with the external nares we find that the vestibule becomes narrower as it passes inwards and joins the nasal chamber opposite the nasal process of the superior maxillary bone. The vestibule or inlet to the respiratory function is cone shaped, and at its junction with the nasal chamber becomes so contracted as to constitute perhaps the narrowest point in the whole respiratory tract. It is curious to note that whereas the external nares are capable of expansion and contraction, the calibre of the upper respiratory tract at its junction with the nasal chamber is rigid and unalterable, being surrounded by bony and cartilaginous borders. A limit is thus put to nasal respiration by the size of the anterior opening of the nasal chamber.

After passing this narrow spot in the respiratory tract we find that the canal expands in a remarkable manner into the nasal chamber, which, with its recesses, constitutes a cavity of considerable dimensions. These recesses must not be dismissed from our calculations when studying the act of respiration. It is as sure and certain as anything can be that these recesses act not only as resonance chambers to the voice, but as warming and mixing chambers; so that the air as it is admitted from the exterior in a raw and unprepared state is mixed with the contents of the nose and its recesses, and so made ready to pass on into the pharynx and upper tubes.

An observation I had the advantage of making on a healthy frontal sinus will go a long way in substantiating this fact.

I opened a frontal sinus for exploratory purposes, and being very careful I removed the button of bone without injury to the lining of the sinus. At each inspiration the lining membrane was depressed and at each expiration bulged into the wound, proving incontestibly that part of the contents of the nasal sinus is withdrawn during inspiration to be replaced during expiration.

The air, then, entering by the cone-shaped vestibule must do so with an increasing rate of speed till it has passed the narrows of the anterior opening. It must here lose much of its velocity, and, becoming slowed down, will distribute itself in all directions, as regulated by the shape of the delivery tube of the vestibule.

It is thus seen that as a stream of air it must be subject to and conform to the shape of the tract through which it passes, and that the rate of motion of the air will be an average between the rates of motion in the narrowest and widest parts of the respiratory tract.

Passing onwards we come to a second marked narrowing—that of the posterior nares. This is crescent shaped, and varies with the size of the posterior end of the inferior turbinal body. The cross-section of this opening can only be a very small fraction of the cross-section of the nasal chamber.

Consequently the air in its passage backwards must be greatly delayed by having to pass this constriction; thus allowing time for the necessary warming, moistening, and filtering of the inflow.

Following on this constriction is a remarkable dilatation, that of the pharynx, extending from the base of the skull to the upper opening of the larynx. The nasal contents having passed the posterior opening of the nares lingers in the pharynx and passes slowly on, but with increasing speed, to the larynx. The act of warming, moistening, and filtering is continued in the pharynx.

So far we have traced the inflowing air to the larynx, and can surmise that the anterior and posterior constrictions of the nasal chamber serve a very good purpose in delaying and slowing down the air in its passage through the nose. The narrow anterior opening or inlet insures that the inflowing air shall be distributed and mixed with the nasal contents. The posterior constriction prevents the too rapid emptying of the nasal chambers by the powerful aspiration of the lungs.

It is curious to note the alteration in the positions of the contents of the respiratory tract from the commencement of inspiration. At the commencement of inspiration the air in the bronchial tubes will pass in and fill the bronchioles and vesicles.

The air in the larynx and trachea will follow on into the



bronchial tubes, and the air in the pharynx will pass on and take the place of the air in the trachea and large tubes, whilst the air in the nasal chambers will flow into the pharynx, larynx, and trachea. We thus see that the air passes in and mixes with and dilutes the impure reserve and residual air, but cannot displace it.

During respiration the impure expirate extrudes the contents of the pharynx and nose and fills the upper respiratory tract. This no doubt undergoes considerable purification in the chamber and recesses of the nose in the interval before the next inspiration.

I would here remind you whilst on the subject of respiration that this is the supreme function of the economy. The circulation and oxidation of the blood not only in the systemic, but portal system is dependent on respiration. It is not unreasonable to suggest to you that any interference with the function of respiration, and so with the proper oxidation and circulation of the blood, for a considerable period in the twenty-four hours must be harmful and baneful to the individual.

The functions of the nose are closely related to the functions of digestion, both directly and indirectly. Directly by the interference with mastication that follows an obstructed nose. A person with his nose occluded cannot shut his mouth sufficiently long to properly masticate his food, and consequently bolts the same before it is half divided, to the detriment of his stomach.

Again, the congestion of the pharynx and post-nasal space incidental to and associated with nasal obstruction upsets the stomach in more ways than one. Directly by the amount of unhealthy mucus that passes into the stomach, and indirectly by the constant irritation of the pneumogastric centre by the branches of the pharyngeal plexus.

The insanitary state of the mouth that follows mouth breathing, and the amount of contaminated and dusty mucus that must pass into the stomach (or what has been properly termed oral sepsis) is a considerable disadvantage to digestion.

Seeing that the whole of the circulation of the liver and abdominal organs is carried on by the respiratory act, any interference with this must be of serious detriment to the absorptive functions of the alimentary canal, and so a fertile source of slow digestion and other forms of dyspepsia.

Digestion and respiration are so intimately associated that I seldom meet with a patient suffering from nasal obstruction in a marked and chronic form who escapes from symptoms of indigestion, sluggish liver, or other abdominal troubles.

Now what relation have the functions of the nose to the eye?

The nose is the drain of the conjunctival sac. Nasal obstruction will cause epiphora, and conjunctivitis, and other troubles. The two functions are intimately and sympathetically associated. The same nerve and the same artery supplies both. Any irritation in the nose is responded to by flushing of the conjunctiva and watering of the eye. The nose is the guardian of the eye. A strong light detrimental to the retina will cause sneezing, and so prevent further damage by altering the position of the head and casting the eyes to the ground, or closing them altogether. Congestion in the nose will be followed by fulness of the retinal veins and congestion of the conjunctiva. The nutrition of the nose and eye are intimately associated. The ophthalmic and sphenopalatine ganglia are anatomically and physiologically closely related.

Passing on to the relations of the nose to the ear, it is not surprising to find that these are peculiarly sensitive. The middle ear, or tubo-tympanum, is developed from the nose by two finger-like prolongations. It is simply a prolongation of the nose cavity. The cavity of the nose and ear are practically one. Any increase or decrease of tension within the nose is immediately felt and communicated to the contents of the ear.

It is not difficult to realise that whatever affects the main cavity of the nose will affect its various recesses and prolongations. The unity of the nose and middle ear must be taken into consideration and fully realised as the first and essential step in the proper understanding and treatment of many of the affections of this cul-de-sac.

There is little doubt that in normal nasal respiration both inspiration and expiration are felt in the tympanic cavity, and that a slight movement of the membrana tympani takes place, inwards with inspiration and outwards with expiration, the same as has been recorded in the frontal sinus. In corroboration of this may be mentioned the fact that when one is listening very carefully for a sound the mouth is opened, and respiration is suspended or carried on very gently by way of the mouth, in order to annul—I suggest—the oscillations incidental to respiration.

The relation between the functions of the nose and the voice are peculiarly apparent. Besides preserving the covering of this organ in a healthy condition, the nasal chamber is the delivery-tube of the voice, as well as its resonator.

The functions of smell and taste are almost entirely dependent on the patency and proper functioning of the nose, and must be entirely annulled if the nose be occluded.

And lastly, there are some grounds for supposing that the nose

is the safety valve of the brain, by acting as a drain to the arachnoid cavity. We know that the arachnoid sheath is continued through each opening in the cribriform plate, and surrounds the olfactory nerves almost to their terminations. The confusion of intellect, the forgetfulness, the difficulty of concentrating the thoughts, the headache, the morning drowsiness, and other mental symptoms that are associated with nasal obstruction may well be due to increase of arachnoid fluid and congestion following on nasal obstruction and the consequent arrest of the functions of the nose. There may be some reason also for believing that some at least of the large quantity of moisture that is taken up by the inspired air comes from the arachnoid fluid. Again, the pathological conditions known as *hydrorrhœa*, where pints of fluid are discharged from the nasal cavities, associated with polypi and other abnormal states, can more easily be explained by the assumption of an outflow from the arachnoid extensions into the nose modified possibly by infiltration.

In order to remind you of the relation of the functions of the nose to the emotions I would ask you to imagine a great actor in any important part with an obstructed nose and an open mouth. The emotional display of the face would be quite impossible, and the actor's efforts ruined.

The relation of the nose to the sexual function is well marked in some of the *carnivora*, but may, I think, be altogether discarded when dealing with the *genus homo*.

Now, gentlemen, you will agree with me that the nose is not an unimportant or idle organ, and is well worthy of our best care and consideration.

I will now return to our main subject and explain to you more fully what is meant by latent or intermittent nasal obstruction, the mechanism of its production, its diagnosis, and lastly, if time allows, I shall say a few words as to treatment. I can more easily explain to you the exact condition to be known as latent or intermittent nasal obstruction by citing you one or more out of the large number of cases I have records of.

In 1895 I was consulted by a medical man, who gave the following account of himself:—He was sixty-three years of age; for the last fourteen or fifteen years he had been troubled with his nose becoming occluded at night and at other times. His general health, he said, was indifferent: he was easily fatigued, and suffered from flatulent dyspepsia, headache, and deafness. His sleep was constantly disturbed at night, and he awoke in the morning unrefreshed and tired. He said for years he had suffered from

catarrh in the nose and head, but lately things had become so much worse that he felt sure he would go out of his mind if something was not done for him. This gentleman was a tall, pale, liverish-looking person with suffering stamped on his face.

I ascertained that he had treated himself with washes, snuff, and inhalations, but with little effect. That he had been under the care of a distinguished physician, who assured him his heart, lungs, and abdominal organs were sound. I found in his present condition nothing that one could lay one's hands on and label as disease. The throat was pale and anæmic, the interior of the nose was pale, and the mucous membrane was if anything anæmic. There was ample room for nasal respiration, and nothing abnormal or irregular was apparent, save one sign, which I venture to suggest was the key to the whole situation. On either side of the septum there was the tell-tale hollow or groove, the exact cast of the lower turbinal body. Beyond this there was nothing to indicate that the nose had been anything but free night or day.

Well, gentlemen, with this physical condition of complete freedom of nasal respiration and the absence of anything abnormal with the nose, this patient was on the very verge of melancholia from the misery and discomfort of complete nasal occlusion so soon as his head was placed upon the pillow. The functions of the nose were here intermittently performed. For sixteen hours it was free, for eight hours it was closed. Yet this nocturnal occlusion was quite sufficient to affect and put out of gear all the correlated functions of the nose, and to bring the economy almost to a standstill.

An almost exactly similar case was that of a barrister sent to me from Dublin by a member of this Association. These are extreme but typical cases, and happily, I am glad to say, are few and far between.

The commoner forms of intermittent nasal obstruction present symptoms of less severity. In many cases there is only the slight hoarseness and morning cough and difficulty in clearing the throat on rising in the morning. There may only be a tendency to flatulent dyspepsia or distension after meals. The hearing may not be quite so good as it was, and the patient may tell you he thinks he is getting deafer, until he finds out he is suffering from a marked degree of deafness. This is constantly the only symptom of intermittent nasal obstruction.

I believe that in intermittent or latent nasal obstruction we have a valid and sufficient explanation for the existence of that large class of slow, insidious, painless forms of ear trouble known as



chronic progressive deafness. Given an occlusion of the nose for eight out of the twenty-four hours, and you have all the factors ready and able to produce occlusion of the Eustachian tubes, congestion of the tympanic cavity, and depression of the drum-head, and the subsequent physical change known as sclerosis. This explanation is worthy of your consideration, and the more I live and learn, the more assured I am of its soundness.

I have on more than one occasion insisted that there is an intimate relation between intermittent nasal obstruction and the affections of the other recesses and extensions of the nose, and the same anatomical and physiological facts that govern the recess of the middle ear apply equally with all the other extensions of the nose. The tympanic cavity and the antrum or frontal sinus are on all fours with each other. They have a common origin, their lining membrane is similar and continuous. They are subject to the same variations in air tension and supply, and they are subject to the same affections.

I have recently exhibited to you a case of frontal-sinus trouble where the suppuration was kept up for three years by occlusion of the nostril on the same side from collapse of the wing of the nose and enlargement of the turbinal body. On reducing the turbinal body and supporting the wing, the suppuration promptly disappeared. Uncomplicated chronic suppurations of the accessory cavities of the nose are induced and maintained by intermittent obstructions of the nose. This applies equally to the aural accessory cavity. The obstinate discharges from these cavities that continue sometimes after operations are to be explained when intermittent nasal obstruction is present.

We have heard a good deal lately about the ætiology and treatment of polypi. My experience is that when these growths are properly removed and the nose properly ventilated and nocturnal nasal obstruction prevented they do not return. I have one case that illustrates my meaning perfectly. I operated on a gentleman, whom I exhibited in this room as a typical martyr to asthma relieved by clearing his nose from polypi. Well, those growths recurred and required removal off and on for eleven years. In the earlier periods of my treatment I took no account of the fact that he was completely obstructed at night-time and yet was free during the day. The asthma was better when the nose was cleared, but returned with the obstruction. Some four or five years ago I operated on both lower turbinal bodies. I have never had occasion to treat him medically since, and his nose remains perfectly free from polypi to this day. I believe that intermittent nasal obstruc-

tion plays an important part in the production and recurrence of polypi. Much more could I say on this important subject, but the time at my disposal will not suffice for a more extended view.

We pass now on to the subject of diagnosis. How do we know when intermittent nasal obstruction is present or absent? If there is nothing abnormal to be seen in the nose, and if the functions of nasal respiration are perfectly and adequately performed, by what signs shall we be able to recognise this form of obstruction? In latent or intermittent nasal obstruction the obstruction as a rule occurs at night-time, when the head is on the pillow and the body is more or less in a horizontal position. When up and about, as in sitting, walking, or standing, there is seldom obstruction, except on passing from a cold to a warm atmosphere, and sometimes when drinking hot liquids or taking spiced or pungent meals and after alcoholic drinks. In the vertical position of the trunk, gravity retains the venous blood in the great vessels of the neck, chest, and abdomen. On assuming the horizontal position the blood flows into the veins and sinuses of the head and neck in response to the same force. When sleeping the arteries become smaller in calibre and the veins larger, so that the veins of the head and neck contain relatively more blood. The cavernous tissue and mucous membrane of the nose becomes, when lax and atonic, distended mechanically by the increased intra-vascular pressure caused by the mere inflowing of blood to these parts. The distended turbinal bodies approach the septum on either side, and press upon it so vigorously as to form a groove or exact cast of themselves and completely obliterate the lumen of the nasal chambers. The erectile tissue on the floor and lower part of the septum helps to complete this. The groove then is to be sought for, and is undoubtedly evidence of the condition I am attempting to describe to you. It is indeed more than evidence, it is pathognomonic of intermittent nasal obstruction, and is the only objective sign that will present itself to you.

With subjective symptoms of laryngeal, throat, nose, or ear trouble and the objective sign I have described, you have all the evidence required to make the diagnosis of intermittent nasal obstruction. I place no credence on the answers of patients to the question as to the method of breathing at night. Some, very often the worst cases, will indignantly repudiate the suggestion that they breathe through the mouth at night, yet will in the same breath tell you that they awake with the tongue dry, and are always anxious for a cup of tea in the morning.

The subject of treatment will involve much time and considera-

tion, and as I feel I have already occupied a large measure of your time, and, like yourselves, am anxious and looking forward to the President's Address, I will postpone the subject of treatment to a more opportune moment.

If, in the remarks I have made, I have given you any suggestions worthy of your acceptance or set you thinking on this important subject, I shall be more than amply repaid for the anxiety and labour attendant on this communication.

### THE ÆTIOLOGY AND TREATMENT OF LABYRINTHINE SUPPURATION.\*

BY WILLIAM MILLIGAN, M.D.,

Surgeon to the Manchester Hospital for Diseases of the Ear; Aural Surgeon to the Manchester Royal Infirmary; Lecturer upon Diseases of the Ear, the University of Manchester.

MR. PRESIDENT AND GENTLEMEN,—Septic disease of the labyrinth demands our most careful consideration, in the first place on account of the damage which may be done to the acoustic or to the static segments of the internal ear, and in the second place on account of the risk which exists of the pathogenic process extending to the basal meninges or to the adjacent lobes of the cerebellum. The most frequent causes of infection of the internal ear are as follows:—(1) Suppurative lesions of the middle ear extending through the external labyrinthine wall; (2) suppurative processes originating at the base of the brain and extending along the perivascular or perineural sheaths of the auditory or facial nerves; (3) deposition of pathogenic organisms by the general bloodstream in some portion of the internal ear; (4) injuries.

The most frequent and, from the practical point of view, the most important cause is extension from the cavity of the middle ear. In the great majority of cases due to this particular cause perforation into the labyrinth has taken place, either as the result of erosion of the bony labyrinthine wall or as the result of maceration of the fibrous structures uniting the foot-plate of the stapes to the margins of the foramen ovale or of the membrana secundaria covering the fenestra rotunda.

Perforations leading into the cavity of the internal ear may

<sup>1</sup> Paper read at the meeting of the Otological Society of the United Kingdom, February 1, 1904.

PLATE I.



FIG. 1.—TEMPORAL BONE SHOWING FISTULA IN EXTERNAL SEMICIRCULAR CANAL.



FIG. 2.—TEMPORAL BONE SHOWING FISTULOUS TRACT LEADING INTO VESTIBULE.





also be of traumatic origin, as in cases of fracture of the base of the skull, direct injuries, *e. g.* foreign bodies introduced into the meatus, or as the result of operative interference, the labyrinth being opened either intentionally or accidentally. The virulence of the infection and its exact exciting cause determine to some extent at least the nature, extent, and behaviour of the resulting inflammatory process. In cases which run a slow and almost painless course a cario-necrotic process is induced, which may result in the whole or considerable portions of the labyrinth being exfoliated in the form of sequestra. In such cases the disintegrating process is frequently of a tuberculous nature. In other cases, however, the infective process may be so acute as to lead to the rapid transference of infective organisms along the perivascular or perineural sheaths of the auditory or facial nerves to the base of the brain.

The frequency of labyrinthine suppuration is difficult to gauge, partly because in most clinics sufficiently detailed statistics are but rarely kept, and partly because the attention of the profession has not as yet become sufficiently focussed upon this particular complication of middle-ear disease as a factor in the production of high degrees of deafness and of intracranial involvement.

The route of most frequent infection from the middle to the internal ear is through a fistulous tract in the horizontal semicircular canal, and the second most important pathway is through the fenestra ovalis. In a recent paper by Victor Hinsberg, out of 198 cases of labyrinthine suppuration collected by him from various sources the pathway of infection was definitely established in 61 cases. In 27 a fistula was found in the horizontal semicircular canal (Fig. 1); in 17 the infective organisms had entered the internal ear by way of the fenestra ovalis (Fig. 2), in 2 by way of the fenestra rotunda, in 3 through both windows; in 7 a fistula was found in the pars promontoria, and in 8 through the posterior or superior semicircular canal.

Labyrinthine suppuration is rare as the result of acute middle-ear sepsis, and for precisely the same reasons as intracranial complications are comparatively uncommon after acute suppurative otitis media. Considerable time is required before the invading army of micro-organisms is able to penetrate the dense bony capsule of the labyrinth or the compact strands of fibrous tissue which close in the fenestræ. The precise point of invasion and the virulence of the pathogenic process determine the particular segment of the internal ear which is involved and the extent of the involvement. In 18 cases out of a total of 89 collected by Hins-

berg the labyrinthine involvement was due to acute otitis media, in 71 to chronic disease. In 21 of the 71 cases following chronic suppurative otitis media cholesteatomata were present. In some cases the septic process becomes localised to the region of the semicircular canals, to the vestibule, or to the cochlea. Usually, however, the contiguity of these various segments determines their almost simultaneous infection. Circumscribed necrosis most usually affects the external lamella of the pars promontoria, which is thrown off in the form of a thin plate of bone. Occasionally the whole or a considerable portion of the cochlea may come away as a sequestrum. In other cases portions of the semicircular canals become detached and exfoliated. The accompanying photographs (Figs. 3, 4, 5) show portions of the cochlea and of the semicircular canals removed by operation from a male patient who had suffered from chronic suppurative middle-ear disease for over twenty years, and whose main symptoms before admission to hospital had been deep-seated pain in the head, severe attacks of vertigo, and profound deafness upon the affected side. A radical mastoid operation was performed and extended into the labyrinth, where the sequestra were found embedded in soft granulation tissue. After removal marked improvement in the general and local condition of the patient at once set in.

In tuberculous disease of the middle ear this particular portion of the external labyrinthine wall is frequently invaded. Of 33 cases of labyrinthine tuberculosis collected by Barnick both fenestræ were found perforated in 5 cases, the oval window alone in 2, the round window alone in 3.

When the inflammatory process remains circumscribed the round-celled infiltration which takes place becomes ultimately organised, with the result that the spaces existing in the internal ear become filled up by a dense fibrous tissue, which ultimately becomes ossified. Once the labyrinth has become the site of purulent invasion, the risks of extension to the base of the brain are obvious. The normal pathways which exist between the internal ear and the basal meninges are the tracts along which pathogenic organisms travel. In the great majority of cases infection from the labyrinth attacks structures within the posterior fossa. A few cases, however, are on record where the pathological process has caused carious erosion of the anterior crus of the superior semicircular canal with the result that the middle cranial fossa became opened and infected. Most usually the resulting intracranial infection takes the form of a diffuse suppurative pia-arachnitis. Occasionally it remains as a localised process, *e.g.* an extra-dural

PLATE II.

FIG. 3.



FIG. 5.



FIG. 3.—SEQUESTRUM CONSISTING OF PORTION OF COCHLEA FROM CASE OF LABYRINTHINE SUPPURATION.

FIG. 5.—SEQUESTRUM CONSISTING OF PORTION OF HORIZONTAL SEMICIRCULAR CANAL FROM PATIENT SUFFERING FROM LABYRINTHINE SUPPURATION. VERTIGO WAS A VERY PRONOUNCED SYMPTOM.

FIG. 4.



FIG. 4.—LARGE SEQUESTRUM CONSISTING OF PORTIONS OF THE THREE SEMICIRCULAR CANALS.





abscess in the posterior fossa or over the tegmen tympani in the middle fossa. The contiguous portions of the lateral lobe of the cerebellum are also prone to become infected. Undoubtedly a large proportion (probably 20 to 30 per cent.) of the cerebellar abscesses met with in practice are due to labyrinthine infection.

Septic invasion of the labyrinth may run an acute or a chronic course. When acute, certain striking symptoms present themselves. Thus deep-seated boring pain is complained of, there is a rapid elevation of temperature and other febrile indications, sickness or nausea is almost invariable, and vertigo is so pronounced as to necessitate the patient's remaining in the horizontal position. Nystagmus either in the vertical or in the horizontal plane is common, whilst rapid and at times complete nerve-deafness is almost invariable.

In the more usual class of case, however, the invasion of the labyrinth runs an almost chronic course, the external labyrinthine wall slowly crumbling away as the result of micro-organismal attacks. In such cases symptoms, although fairly characteristic, are not nearly so well marked as in acute infections. Pain is frequently absent, vertigo is not so pronounced, often being more of the nature of a swimming sensation in the head, there is slight, if any, elevation of temperature, and sickness is by no means constant. The existence of these symptoms combined with a rapid onset of nerve-deafness and the frequent presence of nystagmus should at once attract attention to the probability of the internal ear being affected. Another important symptom is the presence of facial paresis or paralysis. Facial paralysis supervening in the course of a chronic suppuration of the middle ear is always a signal of deep-seated disease. Too often, I think, it is regarded as an indication of middle-ear disease. I am satisfied from clinical and from *post-mortem* experience that its onset frequently indicates a labyrinthine lesion, the nerve being implicated in its passage through the pars petrosa and before it has reached the cavum tympani. In exceptional cases where the process is localised the symptoms will depend upon the particular portion of the internal ear which is involved, viz. the static or the acoustic segments. Where the cochlea is involved symptoms referable to disease of the terminal filaments of the auditory nerve will be present. Thus tinnitus is always complained of, whilst a varying amount of loss of perception for high tones will be met with, according to the extent and situation of the existing lesion. In the great majority of cochlear lesions high degrees of deafness are found.

Should the suppurative process, however, be confined to the

region of the semicircular canals or vestibule, the predominant symptoms will be vertigo, nystagmus, and intermittent attacks of nausea or actual sickness. In 57 out of 97 cases of uncomplicated fistula of the horizontal semicircular canal Jansen found marked vertigo to be present, whilst Lucae, in 30 out of his 50 cases, found the same conditions prevailing.

In localised suppuration of the semicircular canals or vestibule a fair degree of hearing may exist. The occurrence of rapidly advancing nerve-deafness in a case of chronic suppurative disease of the middle ear should at once direct attention to the probability of labyrinthine involvement. If accompanied by vertigo, attacks of sickness, nystagmus, and constant tinnitus, the diagnosis is of course rendered somewhat easier, although the possibility of a concomitant lesion of the cerebellum must not be lost sight of. In actual practice we have to deal with cases where the lesion secondary to the middle-ear infection is confined to the labyrinth—probably a much more frequent condition of affairs than is usually supposed,—where it is confined to the cerebellum, and where both a labyrinthine and a cerebellar lesion co-exist. An accurate differential diagnosis is at times a problem of the utmost difficulty, the symptoms being in many cases so similar.

In uncomplicated labyrinthine suppuration without any intracranial lesion greater degrees of nerve-deafness are usually present, vertigo is more of the nature of the subjective sensation of extreme dizziness than of that form of staggering gait known as the cerebellar gait, sickness and prostration are less marked, occipital pain and retraction of the head are absent, optic neuritis, which is present in about 70 per cent. of the cases of cerebellar abscess, is also absent, whilst the dull and somnolent condition of the patient are more suggestive of a cerebellar than of a labyrinthine lesion. In addition the peculiar coiled-up position of the patient when lying in bed, and the occasional existence of motor paresis or paralysis of the same side of the body, are highly suggestive of a cerebellar abscess. Mechanical yawning is also almost pathognomonic of intracranial abscess. Nystagmus is comparatively common in labyrinthine suppuration.

Jansen and Lucae found it present in all their cases of traumatic perforations. Jansen also found it present in 24 out of 97 cases of carious perforation—practically 25 per cent.,—whilst Lucae found it present in 31 per cent. of his cases of fistula of the external semicircular canal.

The co-existence of cerebellar abscess with labyrinthine suppuration, although by no means uncommon, is extremely difficult

of diagnosis, and is frequently only found out in the course of operative procedures, or as the result of the after-history of the case.

The following notes present a typical picture of an uncomplicated case of labyrinthine suppuration :

D. S—, male, aged twenty-nine, had suffered for eleven years from profuse discharge from his left middle ear following a severe attack of scarlet fever. The discharge was foetid and blood-stained. His hearing power had for long been much impaired, and had become rapidly worse a few weeks prior to being seen in consultation. Severe vertigo was complained of, and on two occasions he had vomited quite suddenly and quite independently of the partaking of food. No definite pain either in the ear or in the head was complained of, but he felt ill, and was quite unable to follow his usual occupation. When first seen the following notes were made :—Patient pale and anæmic, tongue thickly furred, bowels constipated, temperature 97·8° F., pulse 70. Left auditory meatus blocked by a large œdematous polypus in a bath of putrid pus. Bare bone felt by means of a probe in the depths of the meatus. Hearing upon the affected side one-sixtieth of the normal. Tuning-fork tests show want of perception for high tones; no nystagmus; no optic neuritis. Under chloroform anæsthesia a complete radical mastoid operation was performed and a careful toilet of the external labyrinthine wall was made. The stapes was found embedded in granulation tissue, and when gently grasped with a pair of forceps at once came away. Succulent granulation tissue was seen to fill the vestibular cavity. By means of a small bur the fenestra ovalis was carefully enlarged, and a quantity of disorganised tissue was removed from the vestibule. Either during the enlargement of the fenestra ovalis, or during the subsequent process of curetting, the facial nerve was injured, and for a short time after operation facial paresis existed. This, however, ultimately entirely cleared up. The cavity thus made in the labyrinth was lightly packed, and the subsequent treatment of the radical mastoid operation carried out upon recognised principles. The patient made a good although slow recovery, and is now at work as usual. All vertiginous symptoms disappeared after the operation. He is, however, completely deaf upon the affected side.

To illustrate the practical difficulties encountered in making an accurate diagnosis where labyrinthine and cerebellar suppuration co-exist, the following case, which was diagnosed as one of labyrinthine suppuration, may be cited. Unfortunately the possibility of a co-existing cerebellar abscess was not entertained at the



moment. Four days after the labyrinthine operation, however, a cerebellar abscess was opened, but with an unsuccessful result.

J.T—, male, aged thirty-three, was admitted to hospital complaining of deep-seated pain in his left ear, marked vertigo, and constant nausea. Examination showed chronic left-sided purulent otitis media, deep-seated caries, bone granulations, and severe nerve-deafness upon the affected side. His temperature on admission was 102° F., his pulse 64, and his respiration 20. For three or four days prior to admission he had complained of severe dizziness, and on two or three occasions had been sick. A diagnosis of labyrinthine suppuration was made. Under an anæsthetic a complete radical operation was performed, the facial spur being freely removed, so as to gain a good view of the external labyrinthine wall. A fistula was at once seen in the region of the horizontal semi-circular canal leading into the internal ear. A small sequestrum was scooped out, and some succulent granulation tissue was removed with the curette. The after-treatment was conducted upon ordinary principles. The patient did not, however, rally from the operation as had been anticipated. The temperature became subnormal (96.4° F.), and he sank into a dull, listless, and apathetic mental condition. Occipital pain increased slightly, and one or two attacks of vomiting during the two days subsequent to operation made it evident that some other complication existed. It was accordingly decided to explore the adjacent portion of the cerebellum. Four days after the first, or labyrinthine operation, the cerebellum was opened, and an abscess occupying the anterior portion of the left lateral lobe at once found. After evacuation of pus and a few shreds of disorganised brain tissue a drainage-tube was inserted. The patient, however, did not rally, and died the following day. Unfortunately a *post-mortem* examination could not be obtained.

In this case, had a correct diagnosis of labyrinthine *plus* cerebellar suppuration been made, and had both purulent foci been evacuated at the same time, the result might have been very different. On the other hand, the symptoms of labyrinthine suppuration may so resemble symptoms of cerebellar abscess as to lead to the diagnosis of a mixed lesion when the labyrinth is the part alone involved. The fact also that in suppurative labyrinthitis the amount of cerebro-spinal fluid is increased with a corresponding increase of intracranial tension, as evidenced by depression of the various vital centres, slow pulse, subnormal temperature, and slow respiratory movements, tends to materially increase the difficulties of differential diagnosis.

The following case illustrates this point :

J. L.—, aged thirty-one, had suffered for many years from left-sided suppurative middle-ear disease. For some days prior to being seen in consultation he had complained of marked vertigo, pain in his head, and general lassitude. Upon examination a small perforation was found in the upper and posterior part of Shrapnell's membrane. The discharge, which was scanty, was very offensive. His hearing power measured  $\frac{4}{60}$  of the normal and tuning-fork tests pointed to labyrinthine involvement. The attic was carefully cleansed by means of an attic syringe, leeches were applied round the ear, and a large dose of calomel was ordered. The effect upon the patient's symptoms was practically *nil*. When seen again ten days afterwards he was lying in bed, complaining very much of pain in his head and neck, of great photophobia, of sickness, and of swimming sensations whenever he moved in bed. His pulse was 56, his temperature was 97.4° F., and his respirations were 16. Marked horizontal nystagmus was present. There was no optic neuritis. His mental condition was such as to arouse the suspicion of a cerebellar abscess being present, and operation was advised. The preliminary steps were as in the previous case, and a free opening was made into the labyrinth through the region of the horizontal semicircular canal by the enlargement of a small fistula which was found. A disc of bone was then removed over the left cerebellar lobe, and the dura incised. A very free flow of cerebro-spinal fluid took place, the amount being obviously much in excess of the normal and under considerable tension. The cerebellar lobe was explored in four different directions, but no pus was found. The patient made an uninterrupted recovery, and is now in the enjoyment of excellent health. His hearing upon the affected side, which previous to operation had measured  $\frac{4}{60}$ , is now quite gone, the labyrinthine operation having destroyed the little he previously possessed. The case was thus one of suppurative labyrinthitis complicated with serous meningitis.

In such cases lumbar puncture might prove an aid to diagnosis. Where a perfectly clear fluid escaping under tension is drawn off a serous meningitis may be assumed to exist. Where, however, the fluid escaping under tension is turbid and microscopically is found to contain micro-organisms and pus-cells, the existence of a purulent meningitis is certain.

*Prognosis.*—In all cases of labyrinthine suppuration the prognosis is necessarily grave. The ever-present proximity of the pia-arachnoid membranes and the intimate relationship which exists between the sub-arachnoid cavity and the peri- and endolymphatic spaces necessarily render the spread of septic processes

from the internal ear to the base of the brain by no means improbable. The relation also of the corresponding cerebellar lobe to the posterior surface of the pars petrosa is another factor always to be remembered. Various other points must also be considered, viz. the acuteness or otherwise of the inflammatory process, its particular cause and nature, its extent and situation, and the age of the patient.

So far as the function of audition is concerned, it will be found that in the great majority of cases irreparable damage is done, whilst in some cases complete destruction of the internal ear and auditory nerve takes place. In acute cases suppuration may come to an end spontaneously. Healing may then result, the affected portions of the internal ear filling up with granulation tissue, which subsequently undergoes ossification.

In chronic cases the risk of extension to the base of the brain or to the adjacent cerebellar lobe must always be borne in mind, and this risk is the greater the younger the patient. According to Bezold, 20 per cent. of the cases of labyrinthine necrosis die from consecutive brain and sinus affections.

Labyrinthine suppuration following the exanthemata, especially scarlet fever and cases which are of tuberculous origin, are more dangerous than are those due to more ordinary causes. Where disease is localised and confined to the region of the semicircular canals the prognosis is better than where the whole contents of the labyrinth are involved. Under such circumstances from 20 to 30 per cent. of the cases prove fatal.

*Complications.*—Intracranial complications are frequent. From a study of recorded statistics and from observations of my own I have arrived at the conclusion that from 40 to 50 per cent. of the cases are followed by complications, usually intracranial in nature. By far the most frequent pathway of infection is *viâ* the internal auditory meatus along the sheaths of the auditory or facial nerves, and the second most frequent route is *viâ* the aqueductus vestibuli.

Suppurative pia-arachnitis is the lesion most frequently met with, usually diffuse, occasionally localised. Extra-dural abscesses around the sigmoid sinus or over the superior semicircular canal in the middle fossa are also encountered, as are also cerebellar abscesses, developing as a rule in that portion of the lateral lobe nearest to the original focus of infection. As a factor in the production of cerebellar abscess, suppurative disease of the labyrinth is of the first importance. Phlebitis of the sinus and of the jugular vein at times owe their origin to disease in this region.

Jansen has described cases of jugular phlebitis following labyrinthine suppuration, the septic process travelling along the cochlear or vestibular veins.

Of the 198 cases collected by Hinsberg, the cranial cavity was affected in 108. In 43 of these cases the pathway of infection was definitely traced, and was as follows :

In 25 cases through the internal auditory meatus; in 1 case through the internal auditory meatus and aqueductus; in 8 cases through the aqueductus vestibuli; in 1 case through the aqueductus cochleæ, and in 8 cases through fistulæ in the vertical canals.

The operative exposure of the cavity of the middle ear may be the cause of the extension of latent suppuration of the labyrinth to the cranial cavity.

In 169 cases of radical mastoid operation performed by Brieger for prophylactic reasons there were five deaths from meningitis, and in all five the meningitis was due to a concealed labyrinthine suppuration.

In one of my recent cases meningitis developed after the radical operation, and was due to an unrecognised and concomitant suppuration of the labyrinth which evidently became lit up as the outcome of surgical interference.

Suppuration occurring in the posterior segments of the labyrinth may set up a secondary empyema of the sacculus endolymphaticus. An empyema in this situation may suddenly rupture into the meninges and produce a rapidly spreading pia-arachnitis.

*Treatment.*—In order to secure access to the external labyrinthine wall a free exposure of the middle-ear cavity must be effected (Fig. 6). This is best secured by the performance of the typical radical mastoid operation. Sufficient bone must be removed to secure a good view of the region of the oval window. Careful search should be made under good illumination for any fistulous tract leading through the bony wall, or through one or other fenestra. When found the tract should be carefully enlarged by means of the bur, and the path of infection followed until all granulation tissue and purulent *débris* has been got rid of. This may require a prolonged and deep exploration. As the fistulous tract is in the majority of cases found in the horizontal semicircular canal, the operation does not present unusual difficulties. By extending the dissection along the anterior crus of the horizontal semicircular canal the vestibule may be opened, or by extraction of the stapes and enlargement of the fenestra ovalis in a downward direction the same result may be obtained.



The cochlea may be opened up by removing the pars promontoria in a direction forwards and inwards. The first whorl is in this way rendered accessible. Great care must, however, be exercised when working in this region, on account of the near proximity of the internal carotid artery (Fig. 7), which occasionally runs an aberrant course and projects inwards towards the tympanic cavity. Provided, however, the field of operation is kept well illuminated and dry, there should be no fear of wounding the artery.

In discussing the indications for operation we are faced by the fact that clinical experience has taught that in cases running a severe and acute course resolution may take place, whereas cases which appear slight and comparatively symptomless may suddenly light up and end in acute intracranial infection.

I would venture to lay down the following points as guides to operation:

1. In any case of suppurative middle-ear disease where well-marked nerve-deafness upon the affected side is accompanied by frequent attacks of vertigo and sickness, and by nystagmus, either constant or intermittent, a careful search should be made for the presence of any fistulous tract leading into the labyrinth. If found such tract should be opened up and explored; if not found, however, an exploratory opening through the horizontal semi-circular canal or foot-plate of stapes is justifiable.

2. In all cases of suspected labyrinthine disease of septic origin the vestibule should be promptly opened.

3. In cases of chronic suppurative middle-ear disease accompanied by the presence of cholesteatoma and erosion of the external labyrinthine wall free opening of the area of involvement should be effected.

4. In cases of suspected cerebellar abscess accompanied by symptoms indicative of labyrinthine involvement the operative pathway should be *viâ* the middle and internal ear to the posterior surface of the pars petrosa—in other words, through the median wall of the mastoid antrum. In this way the labyrinth is opened up, the anterior portion of the corresponding cerebellar lobe is exposed, and any extra-dural abscess lying upon the posterior surface of the pars petrosa would at the same time be located and drained.

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PLATE III.



FIG. 6.—SECTION OF TEMPORAL BONE SHOWING LANDMARKS OF IMPORTANCE.

1. Superior semicircular canal. 2. External semicircular canal. 3, 3. Facial canal.  
4. Fenestra ovalis. 5. Fenestra rotunda. 6. Pars promontorium. 7. Carotid canal.



FIG. 7.—TEMPORAL BONE SHOWING RELATION OF THE FIRST WHORL OF THE COCHLEA TO THE CAROTID ARTERY AND TO THE FENESTRA OVALIS.



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## SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE OTOLOGICAL SOCIETY  
OF THE UNITED KINGDOM.

*Fifteenth Ordinary Meeting, held at Chandos Street, Cavendish Square, W., on  
Monday, February 1, 1904.*

*The President, Dr. THOMAS BARR, in the Chair.*

The following gentlemen were elected ordinary members of the of the Society :—

George Jackson, F.R.C.S.Eng. (Plymouth).

William Smith Syme, M.D.Edin. (Glasgow).

The PRESIDENT read his Introductory Address, which will be found reported *in extenso* on p. 117 of this issue.

Mr. C. H. FAGGE communicated the *Notes of a Case of Acute Pneumococcal Otitis Media complicated by Facial Paralysis*.

J. B. M——, aged nineteen, consulted Mr. Fagge on March 23, 1903, on account of pain felt in the right ear on the previous morning, and which had been treated locally with opium. On March 23 the patient noticed deafness with pain in the jaw on the right side when eating. A watch was heard on contact on the right, and at thirty-six inches on the left.

The right membrane was obscured by wax, which was removed, and was then seen to be red with the epithelium sodden; the malleus was not seen on account of the swelling of the drum. The naso-pharynx showed a small flat mass of adenoids. He was Politzerised, which temporarily relieved the pain, and he was directed to instil glycerinum acidi carbolici.

On March 24 the pain had recurred, and though the signs of otitis media were locally less marked, there was complete infranuclear right facial paralysis. He was put to bed, and at ten p.m. the temperature was 102·6° F.

March 25.—Temperature 100° F.; pain present, but not marked. Paracentesis of the right membrane was done with antiseptic precautions under A.C.E. mixture. Pus was evacuated, which was unexpected, as the local appearance of the membrane did not suggest its presence; the pus gave a pure culture of pneumococcus.

After about a fortnight the facial paralysis began to improve, and the ear was dry and the perforation healed.

On May 12 the facial paralysis was well, except for slight

weakness of the orbicularis palpebrarum; the hearing by the right ear was  $\frac{3}{8}$  ft.; and under galvanism the palsy had entirely gone a few weeks later.

This case was communicated because of the early onset of paralysis in acute otitis media, pneumococcal in origin, and in which there was certainly no suspicion or bacteriological evidence of tubercle, and further because of the very happy result which attended paracentesis, though this unfortunately could not be carried out till the fourth day.

Mr. A. H. CHEATLE considered the case one of interest, and the result good. He supposed that the facial nerve was exposed from a natural absence of part of the bony canal.

Mr. C. H. FAGGE said Mr. Cheatle's theory of the causation of the palsy agreed with his own.

Mr. C. H. FAGGE exhibited a *Specimen of Mal-development of the External, Middle, and Internal Ears in a Still-born Infant*.

The specimen showed the two halves of the head of a newly-born infant, from the left half of which the temporal bone had been removed and macerated.

The left half of the head showed a small, blind, shallow depression in the position of the external auditory meatus, below which was a crescentic nodule of skin and soft parts without cartilage, representing the pinna.

The right half of the head showed an extensive macrostoma, the angle of the mouth extending nearly to the external auditory meatus, which was narrow, shallow, and blind, and situated well above and in front of the rudimentary pinna, which was much like that on the left.

The right temporal bone had been partly dissected from above, and showed a normal internal auditory meatus, from which the facial aqueduct could be traced to the position of the geniculate ganglion, but was there lost in the dissection carried downwards external to the course of the facial nerve; the superior and external bony semicircular canals had been exposed, and could be demonstrated to end below in a cavity, evidently an ill-developed vestibule; dissection in the bone there had failed to show any evidence of a middle ear or antrum, or any spiral canal of the cochlea.

The left temporal bone had been cleaned and macerated, in doing which it was divided into two halves—(1) squamous, (2) petro-mastoid;—there was no tympanic ring.

The petro-mastoid part, sectioned parallel with and three-sixteenths of an inch from the external surface, showed an outer

surface with which clearly part of the squama was fused; this was irregular and slightly concave, but showed no external auditory meatus and no stylomastoid foramen. The cut surfaces of the bone showed the parts of several irregularly connected cavities, of which one, the lowest (? the rudimentary cochlea), had an opening on the inferior surface of the bone; the external semicircular canal, which was large, opened into the upper and posterior part of this cavity, which perhaps represented the vestibule.

The inner half of the left petro-mastoid showed the facial aqueduct from the internal auditory meatus to the genu, where it comes to the surface and is lost; it also showed the usual elevation in the position of the superior semicircular canal, but neither this nor the right side showed any floccular fossa.

The soft palate completely blocked the naso-pharyngeal space, for the nasal cavity ended blindly behind, though the turbinate bodies were well formed; no Eustachian tubes, cartilaginous or bony, could be demonstrated on either side.

The PRESIDENT said it was a most rare form of malformation. The development of the labyrinth was so different in its origin from that of the middle and external ear that it would be very interesting to know the exact condition of the labyrinthine cavities in such a case of arrested development.

Dr. HERBERT TILLEY said a point in the case which interested him was that no antral cavity was present. At the Liverpool Meeting last May Dr. Paterson, of the Liverpool University, gave a most interesting paper and demonstration on the development of the ear, and it seemed possible from what he said that it might be one's experience to meet a patient with ear symptoms which seemed to necessitate an antral operation, and yet this cavity might be found to be either particularly small or absent. Just before that date he (Dr. Tilley) had operated upon a case in hospital in which he thought that practically no antrum existed. He got very deep in the ordinary mastoid operation, but came to no cavity. Then he approached it from the middle ear, and tried to find his way from the upper part of the tympanic region into an antrum through the "aditus ad antrum," but could only insert the point of the probe into a small depression which seemed to represent the antrum, and which was external to the deepest part of bone wound in the antrum. The patient was an adult, aged twenty-five, suffering very much pain, associated with chronic suppurative otorrhœa, symptoms which did not get well by any treatment through the external meatus. He recorded the history of the case at the Liverpool Meeting, and asked there the question which he re-

peated at the present meeting, namely, whether any one of the members present, in operating upon an adult, had found the antrum so small that it would justify them in surmising that possibly it might be even smaller, or practically non-existent? In the present specimen, which was undeveloped, there was no antrum, nor anything to correspond with it.

Mr. FAGGE, in reply, said he was grateful for the encouraging remarks of the President, as, considering the rarity of the specimen, the absence of much discussion upon it was most disappointing. With reference to the internal ear, he found on the right side the superior semicircular canal normal; the facial and auditory nerves could be seen passing into the internal auditory meatus, but beyond that point he could not trace the facial nerve, and there was no stylo-mastoid foramen for its exit. With regard to the termination of the auditory nerve, there was no evidence of any cochlea, as far as he had yet carried the dissection. On the left side there was no evidence of any spiral canal of the cochlea; the section here opened into two halves a cavity which he imagined was derived from the original epiblastic diverticulum (otocyst), which should give rise to the internal ear, but which here showed no signs of differentiation. If the internal ear were really rudimentary, it was an exception to the usual rule, for Bezold and Joel (*Zeitschrift für Ohrenheilkunde*, xviii and xxvi) had in sixteen recorded cases of abnormal external ears with absent or defective tympana found the internal ear normal in ten cases. In answer to Dr. Tilley, he had heard Prof. Paterson's very interesting paper at Liverpool, and he thought the weak point in Dr. Tilley's argument was the presence of the tympanum. He (Mr. Fagge) would have said no middle ear no antrum, but where there was a middle ear that there must be an antrum. His specimen clearly indicated a want of development of the dorsal segment of the first visceral cleft, in both its internal and external clefts, and also of the adjacent cartilaginous bars, but he was quite unable to account for the abnormalities in the internal ear. Having shown the specimen, he proposed to decalcify and cut serial sections of one of the temporal bones, in order to definitely solve the questions he had been asked, but he had wished the Society to see and examine the specimen before it was much cut into.

Dr. WILLIAM MILLIGAN made a short communication upon *The Etiology and Treatment of Labyrinthine Suppuration*, which was illustrated by lantern slides, and will be found reported on p. 132.

The PRESIDENT said he was sure all the members must feel, as he did, that the paper was a most interesting and instructive one,



and upon a subject which had not hitherto received the attention it deserved. For bringing forward the facts so lucidly and impressively Dr. Milligan deserved the warmest thanks of the Society.

It was agreed that the discussion of the paper be postponed until the next meeting.

Mr. HUNTER TOD communicated a *Case of a Tumour of the Right External Meatus in a Woman aged sixty-seven, removed by Operation; Sarcoma.*

The patient, specimen, and microscopic section were shown.

The patient was first seen in October, 1903. She was extremely deaf in both ears. She had noticed a small growth in the right ear for three months.

The right external meatus was blocked by what appeared at first sight to be a broad-based papilloma, situated at the junction of the fibrous and osseous portions of the posterior wall of the auditory canal. It was about the size of a large pea, and was limited to the external meatus. A portion removed by the snare and examined microscopically showed the structure of a round-celled sarcoma.

The following week the growth was removed. A post-auricular incision was made, and the auricle turned forwards. The external meatus was completely excised. Although the bone appeared normal, the posterior wall of the bony meatus was chiselled away as far back as to just expose the antrum, and inwards as close to the membrana tympani as possible without injuring it. The skin wound was sutured, and the cavity was packed through the external meatus. Six weeks later the cavity was skin-grafted through the external meatus. The cavity was now covered with skin, with the exception of a small area over the region of the antrum, and there was no stenosis of the auditory canal. The deafness was not improved, the patient apparently had been suffering from chronic middle-ear catarrh for some years.

Mr. Tod asked that the section might be submitted to the Pathological Committee, to consider the diagnosis of sarcoma; for if it were a round-celled sarcoma, it would be a case of great rarity.

It was agreed to submit the specimen to the Pathological Committee of the Society.

Dr. W. H. KELSON showed a *Case of Deafness with Adventitious Membrane of Meatus following Chronic Suppuration of the Middle Ear.*

The patient was a girl aged twenty who had suffered from a discharge of pus from the right ear when a child. She was very deaf

on that side, and was anxious to regain her hearing, if possible. On examination the ear was found to be quite dry, but there was a red membrane with a whitish spot near its centre stretched across the right auditory meatus. No ossicles were visible; the membrane was considered not to be the membrana tympani because it was markedly nearer to the entrance of the meatus than the drum was on the other side. Bone conduction was much better than aerial; inflation did not improve the hearing.

Mr. CRESSWELL BABER suggested that there should be no radical treatment in that case, as there did not seem to be much discharge. He would treat it in the ordinary way by means of astringents or drops of alcohol.

Dr. PRITCHARD asked what was the condition of the hearing on the other side.

Dr. KELSON replied that there was fair hearing on the other side.

Dr. PRITCHARD said he would leave it alone.

Mr. HEATH also agreed that the chances of improvement by operation were very remote.

Mr. W. C. BULL showed the *Left Temporal Bone of a Man, aged twenty-one, who had died from Cerebellar Abscess.*

Purulent otorrhoea had existed for twenty years; facial paresis fourteen days. No optic neuritis. No vomiting. Intense pain. Speech normal; gait normal. The existence of the abscess was not suspected. The complete mastoid operation was performed, and the bone in the region of the antrum and tympanum found to be black. Two openings were found, one leading from behind the ridge of the canal of the facial nerve and passing toward the canal, the other passing directly from the tympanic cavity through the wall into the labyrinth. The man died on the third day after the operation, from bursting of a large cerebellar abscess.

*Post-mortem.*—The discolouration of the temporal bone extended to the apex of the petrous portion. There was some caries on the superior surface of the bone in the middle fossa. The meninges were not inflamed. The lateral sinus was normal. Infection had passed from the tympanum through the labyrinth, or along the canal of facial nerve to the internal auditory meatus, and thence to the cerebellum.

Mr. CHARLES HEATH thought the case showed that facial paralysis was an indication for early operation, as it implied progressive disease. In December last he operated in one day upon two cases of mastoid disease with facial paralysis. The complete radical opera-

tion was performed in each case. In one the paralysis disappeared in three days; in the other, after removing the bridge over the aditus, a depression was seen on the inner wall of the groove about the size of half a small pea. This was the site of exposure of the facial nerve, which could be touched with a probe and the facial muscles moved. The paralysis in this case was recovered from slowly, the eye taking six weeks. There was a large opening between the antrum and lateral sinus in this case, and between the antrum and middle fossa in the other, yet there were no intra-cranial or vascular symptoms whatever. Last year he operated on a man with chronic aural suppuration with pain, fever, and optic neuritis. He was giddy and looked ill. He opened the mastoid antrum and found only the usual suppuration. He then exposed the dura mater of the middle fossa; it looked natural, was not discoloured nor unusually tense. A friend who knew the symptoms before operation suggested exploration of the middle lobe. Mr. Heath decided to do that later had it been necessary. The patient improved in everything but his optic neuritis, so at the end of two weeks iodide of potassium was given, and the neuritis disappeared in three or four days, and his recovery was complete.

Dr. MILLIGAN asked what was the exact cause of death in Mr. Bull's case.

Mr. BULL, in reply, said he was not sure that his description of the specimen was right; the disease appeared to have gone straight through the labyrinth, and not along the canal for the facial nerve. He had not the faintest suspicion of there being an abscess. The specimen was interesting because of the great discolouration of the petrous bone, the opening from the middle ear into the aqueductus Fallopii, and the direct opening into the labyrinth. There was no opening either through the roof of the tympanic cavity or posteriorly, so that the abscess did not go through into the temporo-sphenoidal lobe, and did not travel backwards into the cerebellum, but tracked along the canal of the facial nerve, or through the labyrinth to the internal auditory meatus, and thence into the cerebellum. As far as he could judge, the abscess had been there three or four months, during which time the man was walking about. He had no staggering, or nystagmus, or optic neuritis, or vomiting. At twelve o'clock one night he became violently maniacal, and died at five o'clock in the morning. There was no suspicion that he had abscess. The bones in these cases were generally spoilt by the *post-mortem*. He exhibited the bone showing what the condition was. The specimen is in the museum of St. George's Hospital.

PROCEEDINGS OF THE LARYNGOLOGICAL  
SOCIETY OF LONDON.

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*Eighty-fifth Ordinary Meeting, December 4, 1903.*

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J. CHARTERS SYMONDS, F.R.C.P.Ed., *President, in the Chair.*

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(Continued from page 110.)

Mr. HUNTER TOD showed a *Lupus of Inferior Turbinates and Cartilaginous Septum of Nose in a Woman aged Twenty-six Years.*

Mr. Tod said he brought this case forward for two reasons. Firstly, because the case had been treated for over a year as being syphilitic; and secondly, owing to the disease being entirely limited to the nasal cavity, which was comparatively uncommon.

Dr. DONELAN said the important question was whether the woman should not be submitted to operation, for a tuberculous septum certainly did remarkably well if widely removed. Had the "light" treatment been tried?

In reply to Dr. Hill, Mr. Tod said that he had only seen the patient once, but he knew that potassium iodide had been given at different periods for a year. Also the nose had been cauterised frequently. He agreed with Dr. Hill that cauterising or the application of lactic acid was comparatively useless. He had had a fair number of such cases transferred to him from the Lupus Department of the London Hospital. If the middle turbinates were affected he removed (under a general anæsthetic) as much as was necessary by the scissors and snare, and curetted freely, by means of Meyer's ring-knife, the septum and inferior turbinates. The patient was then given an alkaline lotion, and told to wash out the nose daily for a month. What little more there was left to do could now be curetted away under cocaine. Several cases where the disease was limited were apparently cured after the second operation. In others one had to repeat the curetting two or three times.

In reply to Dr. Donelan, Mr. Tod said that the "light treatment" had benefited those cases where the disease was limited to the tip of the nose and entrance of the vestibule, but did not affect the deeper parts owing to its lack of penetration.

Mr. CRESSWELL BABER showed a *Case for Diagnosis—Man aged Sixty-nine.*

The patient, aged sixty-nine, formerly a captain in the merchant service, was first seen on September 7, 1903.



*History.*—Roughness inside the cheeks for three or four months. About August 8 last he first noticed extensive white spots in the mouth and throat. He had had no illness; always enjoyed good health, excepting a bad attack of congestion of the liver on a passage to the West Indies forty years before. He had smoked about five pipes daily—not had syphilis. For the last twenty years he had spent a great deal of time gardening in a vineyard, and this year he had used for the first time Butcher's manure.

The throat trouble began at the commencement of June with slight pain in swallowing and hoarseness. *Present state.*—Numerous white patches of varying size and shape on the sides of tongue, inside of cheeks, gums, soft palate, and apparently a similar condition in the larynx. These membranes were easily detached, and left a red abraded bleeding surface underneath. The epiglottis appeared thickened, and had white patches on it, and the cords were red and abraded. There was some dysphagia but no dyspepsia. The glands were slightly enlarged on both sides. Examination showed his chest to be normal, liver somewhat enlarged; urine, no sugar or albumen. Numerous specimens of the membrane and also scrapings of the underlying tissues had been examined microscopically. The membrane consisted of epithelial cells, granulation tissue, and fibrinous exudation. Sometimes micrococci and bacilli were present. No diphtheria or tubercle bacilli. In one or two specimens some streptothrix and torulæ had been found, but in almost all the specimens no fungi were to be detected.

The patient had been treated internally with arsenic, iodide of potassium, chlorate of potash, and locally with antiseptics, boracic acid, permanganate of potash, carbolic acid, menthol, salicylic acid, etc.

The patient's condition had on the whole improved, especially so during the last month. There was now comparatively little of the patches left on the tongue, inside of the mouth, and soft palate. The epiglottis had also improved. There was interarytænoid thickening, but no want of movement of cords.

Sir FELIX SEMON thought this a case of pemphigus of the mucous membrane. He had seen several of these cases. They were very rare, but the appearance in this case was so characteristic that it was hardly possible to mistake it for anything else. The diagnostic difficulty was due to the short vitality of the bullæ, which lasted only a few hours, and not even a day. There was one just rising on the back of the epiglottis on the right side. The only thing that could make one doubtful was the appearance of the

inside of the mouth, but one ought to remember that cicatrisation was not uncommon in cases of pemphigus of the mucous membrane. This was particularly characteristic when the affection began on the conjunctiva, causing the condition known to ophthalmologists as "essential shrinking of the conjunctiva." In these cases so much cicatrisation took place that the patient might become totally blind. Again, pemphigus of the mucous membrane of the nose might lead to adhesion between the opposite sides, and total obstruction of that organ. The fact that in this case there was no external manifestation of pemphigus was not in the least proof against the diagnosis. This was the fourth case he had seen. In the first two the affection was entirely limited to the mucous membranes, and only in the third, sent to him by Sir Hermann Weber, which showed a condition internally exactly like Mr. Baber's case, there was in addition pemphigus on the external integument. There was, so far as he knew, no actual cure for the disease, but he recommended the use of liquor opii sedativus in increasing doses, which in his third case had improved the condition for a time very materially.

In reply to a question by Dr. Hall, he said he had tried arsenic in two of these cases of pemphigus, but he was sorry to say the results had been negative.

Dr. DE HAVILLAND HALL wondered whether arsenic would answer. It might be worth trying five minims of liquor arsenicalis *ter die* for two or three weeks. At any rate it could do no harm, and it might possibly be the means of clearing up the case. In the case of children this drug was invaluable; in cases of pemphigus of the skin improvement followed the administration of arsenic.

The CHAIRMAN said it was a question whether they were using the correct term in applying the word pemphigus to this condition, but in its patchy distribution it seemed to resemble pemphigus more than anything else. He remembered showing two cases to the Clinical Society very much like this one. One, under the care of Mr. Higgins, had the conjunctival form to which Sir Felix Semon had referred. On examining the throat he found a patch on the epiglottis and on the pharynx. The other, his own case, was a man of fifty; there were no bullæ, but curious white patches. At that time several cases were shown. It was a most difficult thing to cure, and like pemphigus, it "came and went."

Mr. BABER said that he had watched the case for several months, and on the whole the patient was rather better than otherwise. As regards treatment, the patient had had arsenic in two separate courses, at one time as much as  $7\frac{1}{2}$  minims of liquor arsenici *ter*

die, but it did not do any good. He would try Sir Felix Semon's treatment. Whether or not this ought to be called a case of pemphigus he was not sure, but he thought it was, although there was no affection of the skin.

Dr. LAMBERT LACK showed a *Case of Subhyoid Pharyngotomy for Malignant Disease of Epiglottis and Base of Tongue.*

The patient was a man aged about sixty, who was first seen in June of this year. He complained of pain and the feeling of a lump in the throat, with some dysphagia. On examination an irregular ulcerating growth was seen involving the epiglottis, the glosso-epiglottidean fossa, and spreading slightly on to the base of the tongue. There were enlarged glands in the anterior triangles of both sides of the neck, those on the right side being small and freely movable, whilst those on the left side formed a mass as large as a bantam's egg, and were somewhat fixed. The man appeared in good health, and there were no other signs of organic disease. He was probably alcoholic, being a publican. The operation consisted in making an incision along the anterior border of the sterno-mastoid on both sides of the neck, and in thoroughly clearing out all glands, fat, and fascia from the anterior triangles on both sides. These incisions were then connected by a cut across the middle line just below the hyoid bone. The thyro-hyoid membrane was divided immediately above the thyroid cartilage, and the epiglottis cut through near its base. This opening was enlarged first on the right side and then on the left, keeping well below and clear of the growth; then the pharynx being well open the growth was seized and drawn out through the incision, and clipped off the tongue with knife and scissors. Thick catgut sutures were inserted into the base of the tongue and hyoid bone to bring them down to the thyroid cartilage, and to close the opening into the pharynx. The external wound was closed with interrupted sutures, and a drainage-tube placed in the outer angle on each side. The patient made a good recovery. For the first fortnight it was necessary to feed him with a stomach-tube. He was unable to swallow, as all attempts to drink brought on a violent cough. It is probable that very little fluid entered the air-passages, as the power of effective cough remained; thus there was no danger of suction pneumonia. He regained the power of taking solids before that of drinking. It was now six months since the operation, and there was so far no sign of recurrence.

The CHAIRMAN had done a good many of these cases. The method and the incision adopted by Dr. Lack were very good

indeed, and he congratulated him on an excellent piece of surgery.

Mr. DE SANTI congratulated Dr. Lack on the excellent result in this particular case. He noticed particularly that the great point of the operation was the excision of the glands on both sides: he had thought for a long while that in the extrinsic variety certainly, and in some cases of intrinsic origin, the excision of the cervical glands should always be done. He felt it was a mistake in a limited intrinsic carcinoma of the larynx to leave the glands alone, unless they were felt to be enlarged, and this was what was more or less commonly done; the glands should be attacked in the same manner as in a case of carcinoma of the breast when the axilla was cleared out, whether glands were felt to be enlarged or not. In carcinoma of the larynx a fair number of recurrences took place in the glands in those cases where they were left alone.

Sir FELIX SEMON absolutely opposed the notion of the previous speaker, *i. e.*, that in ordinary cases of intrinsic carcinoma where there was no evidence of affection of the glands these should be removed. Such a proceeding was, in his opinion, absolutely unnecessary. Mr. de Santi's opinion was only one step removed from the extraordinary proposition of Dr. John Mackenzie, that as soon as the diagnosis of cancer of the larynx had been made the whole larynx should be excised, together with its tributary lymphatics and glands. If one operated on a case of intrinsic carcinoma of the larynx in time—that is to say, when it was entirely limited to the larynx—one did not get recurrence. He therefore did not see the least reason for the more extensive operation recommended by Mr. de Santi. His experience was now large enough to enable him to speak with a certain amount of determination on this subject, and he would consider it wrong to listen to such a proposal without at once entering a serious protest against it. His protest, however, of course applied only to cases in which thyrotomy was sufficient, not to cases in which extirpation of half the larynx or even more extensive operations were required.

Dr. STCLAIR THOMSON showed a *Man aged forty-eight with Growth (? Tuberculoma) on Left Cord; was injected with Tuberculin Eleven Years ago, and has remained well since.*

When Koch's tuberculin first came out in 1893 this man was treated with it by Dr. Heron in the Victoria Park Chest Hospital. The result was so satisfactory that since that date he had carried on the unhygienic occupation of a baker, and at present the chest showed no physical signs beyond a little dulness over the front of



one apex, and his sputum was free from tubercle bacilli. For a year he had been getting hoarse, and the anterior third of the left cord showed a sessile growth with a flattened irregular surface. It was difficult to say if this were ulcerated or only covered with shed epithelium. The cord moved freely, and did not appear to be infiltrated. Opinions were invited as to diagnosis and treatment.

Dr. BEALE was particularly interested in this case, as it was one of the first to be injected with tuberculin by his colleague, Dr. Heron—the case was not under his care. There was a remarkable reaction, the patient was exceedingly ill for a long time, and there was a good deal of tuberculosis in his system at that time. But now he was steadily able to pursue his work, and had been doing so since his recovery; but there was still this condition of the larynx, which he thought a very chronic tubercular process of the left vocal cord on account of its obvious superficial position. It did not interfere with movement. There were no enlarged glands, and the surface was covered over with dry crusts in very much the same way as was the back of the pharynx. If it were possible to clean the surface he should advise this being done, and then a good examination might be made, when possibly it might be found that beneath the crusts was a condition similar to that seen in the case shown by Sir Felix Semon that day.

Dr. H. J. DAVIS showed a *Case of Severe Paroxysm of Sneezing*.

The patient was a woman aged fifty-two, very anæmic, who came to the hospital complaining of paroxysms of sneezing of violent character. Directly she arose "she would sneeze forty or fifty times, and the water would spurt from her nose." Handkerchiefs being mere bagatelles to her, she had recourse "to large aprons," and she would saturate five or six of these in a morning. There was nothing visible in either nostril beyond slight turgescence, as in acute coryza, and she was given iron and an alkaline lotion. The following week she was nearly well, and she stated that on the second day of treatment she syringed "a small ladybird" out of the right nostril. This she thought crawled up her nose when she was in the country; "it was a little larger than a pin's head, with a lot of legs on it." The woman was now practically well (locally).

Mr. BABER suggested the possibility of the insect having first been in the water that was used for syringing.

Dr. H. J. DAVIS was unable to confirm the patient's statements, but she said she put the insect in a little bottle, which her daughter

had thrown away by mistake. It had, she said, a red back with black spots, with small claws and legs. The patient seemed to be much better since its supposed expulsion, and was keeping well.

Dr. G. C. CATHCART showed a *Case of Paralysis of Soft Palate and Defective Speech* (? *Diphtheritic in Origin*).

The patient was a boy aged eleven. He was unable to continue attendance at school owing to his defective speech. He could pronounce no consonants except m, n, and b; for the others he substituted the sound "uh"; for instance, instead of "so-and-so" he said "uho uho," and for "come," "uh." He had diphtheria when sixteen months old, and the paralysis of the palate, which is almost complete, probably dated from that time. Fluids used to regurgitate through the nose, but for some years this had not been the case.

In spite of the fact that there was a large mass of adenoid growths in the naso-pharynx the respiration was always nasal and never buccal, and there were no signs of deafness.

Dr. BROWN KELLY did not think this a case of paresis, but one of insufficiency of the palate. He thought it especially interesting as probably being the first case of its kind reported in this country. He had met with a very marked case of insufficiency of the palate several years ago, and since then had had four others. In the majority of these cases the uvula was bifid, and there was notching of the hard palate, *i. e.* a triangular gap in the posterior edge. In this case, however, there was no notch, and in at least one of his five cases it was also absent. The insufficiency which was supposed to be caused by the drawing forward of the soft palate, in consequence of the presence of the notch, was therefore not always due to this cause. In these cases the finger, on examination of the naso-pharynx, was not "gripped" as under normal circumstances; the speech was affected to a varying degree, and there was no trouble with deglutition.

Mr. WAGGETT asked if, in dealing with these cases of palatine insufficiency, which were not so very rare, any members had used paraffin injections in order to create a pad upon the superior aspect of the velum, with the view of improving the efficiency of the organ as an operculum.

Dr. SCANES SPICER remarked that paraffin had been used to complete the cleft palate operation, and was so described in the original paraffin communication of Gersung.

Sir FELIX SEMON said he had heard of paraffin having been

injected into the soft palate, but he thought that it was extremely difficult to determine the correct quantity of the mass to be injected, and he was afraid that if, unfortunately, too much were injected, the remedy might turn out worse than the disease.

Dr. DUNDAS GRANT showed a *Case of Pharyngomycosis involving the Pharyngeal Tonsil in a Girl aged seventeen.*

K. D—, aged seventeen, was first seen by Dr. Grant on December 2, 1903, complaining of mucus in nose and throat of about seven years' duration, and yellow spots on tonsils, which she had noticed about three weeks ago. Typical spots of pharyngomycosis were found on the fauces. Posterior rhinoscopy showed a small round mass of adenoids with yellowish-white pointed specks on them: there were also spots on the tonsils.

Dr. DUNDAS GRANT showed a *Case of Pharyngomycosis involving the Laryngeal Surface of the Epiglottis.*

Mr. W. P—, aged forty-nine, was first seen by Dr. Grant on October 17, 1903, complaining of a feeling of roughness at the root of the tongue and in the throat, and of little white spots in the throat; one spot was first noticed about three years ago, but the number had increased within the last five or six weeks. There were numerous very typical spots on the tonsils and base of the tongue, and a few small ones on the laryngeal surface of the epiglottis. Dr. Grant showed the case because the occurrence of the disease on the laryngeal surface of the epiglottis was extremely rare, and in his experience unique.

The CHAIRMAN said this was the first time he had seen the surface of the epiglottis affected. He had had four cases, one in a medical man, very widely distributed.

Mr. WAGGETT asked Dr. Grant why he used the term pharyngomycosis in preference to keratosis of the pharynx, which had been adopted almost universally for this condition. The mycelium was not found in the majority of these excrescences.

Mr. SPENCER said the larynx seemed to be involved secondarily from the lingual tonsil, which was very much affected. Some good might come from a thorough scraping of the lingual tonsil.

Sir FELIX SEMON did not think scraping the tonsils would do the least good. He had so often referred to the futility and, what was more important, the superfluity of local treatment in these cases, that he could only reiterate the opinions he had previously expressed on that subject.

Dr. LAW said that some years ago he had shown a case, which

was depicted by Mr. Waggett, where the patient had the appearance of an artificial set of teeth at the back of the pharynx, and numerous excrescences in both Rosenmüller's fossæ and in Luschka's tonsil. Scraping and all sorts of treatment were tried, at home and abroad, under many men, also long residence at Margate. At last the patient gave up all treatment, and in three or four months she was quite well.

Dr. HERBERT TILLEY related his own personal experiences of pharyngo-keratosis, and described the harassing cough which it sometimes produced. It had no effect on the general health, and in his own case he suffered from the local trouble during the summer months, and endeavoured to check the progress of the malady by playing as much tennis as possible.

Dr. SCANES SPICER considered that this case afforded evidence that mycosis pharyngis was not always and solely a condition of keratosis of lacunæ, but had at least a twofold origin, for there were no lacunæ in the mucous membrane of the anterior face of the epiglottis in the sense in which lacunæ existed in the tonsils. He regarded the patches on the epiglottis, and in part elsewhere, as probably mycelial.

Mr. WAGGETT, in reply to Dr. Scanes Spicer's remarks that no follicles were present on the anterior aspect of the epiglottis to account for the presence of the excrescences seen in the situation in this case, stated that the keratosis nodules had no relation to any anatomical follicles, but that they commenced as small pearls under the surface of the mucous membrane, as had been described by Dr. Brown Kelly.

Dr. BROWN KELLY said that sometimes one could see white spots under the mucous surface, which when microscopically examined were found to consist of concentrically arranged layers of cells. These burst through the mucous membrane and formed an excrescence. It merely then offered a favourable soil for the growth of the leptothrix, which in certain parts were found more abundantly than in others. In his experience the leptothrix were most numerous in the excrescences situated about the tonsils; they were absent on those in the naso-pharynx, and present only in small numbers on those at the base of the tongue.

Dr. DUNDAS GRANT did not defend the term pharyngomycosis, which he used only because it was so well known and useful for identification. In one of his cases the *Bacillus coli communis* had been found. There was not always a leptothrix, so that this might be omitted altogether as a feature. The chief misfortune about the complaint, as Dr. Tilley inferred, was its discovery by the



patient. It worried the patient, whereas the symptoms, so far as keratosis was concerned, seemed to be *nil*. They usually arose from some concomitant catarrhal condition, and when found out gave the patient a tremendous fright. He had seen one case mistaken for syphilis, and very often these cases were mistaken for diphtheria.

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*Eighty-sixth Ordinary Meeting, January 15, 1904.*

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P. McBRIDE, M.D., F.R.C.P.Ed., *President, in the Chair.*

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The following cases and specimens were shown :

Dr. W. H. KELSON showed a *Case of Deformity of the Fauces in a Woman aged thirty-eight.*

The patient came complaining of a suppurating middle ear. On examining the throat it was found that the posterior pillars of the fauces appeared to be represented by two bands which, instead of passing down to the root of the tongue on either side, pass backwards to the middle line of the pharynx, forming a sharp curved margin. She only complained of slight dryness in the throat, and was not aware of anything wrong there. It seemed probable that both throat and ear conditions were due to a severe attack of scarlet fever in childhood.

The PRESIDENT had seen a case exactly similar in every respect, the result of scarlet fever. Curiously enough the patient had been brought to him for examination of the ears only.

Dr. LOGAN TURNER showed a *Patient with Edema and Infiltration of Uvula, Left Half of Soft Palate, and Left Lateral Wall of Pharynx; Infiltration of Epiglottis and both Arytenoid Regions.*

Patient, a male aged forty-four, unmarried, is a well-developed, healthy individual. He denies ever having had syphilis; he has no cough or expectoration, and examination of the chest shows that the lungs are apparently healthy. The urine is normal. He has never lived outside the British Islands. He has never suffered from any throat affection until the end of June, 1903, when an opportunity was offered of observing the present condition owing to the sudden onset of serious respiratory symptoms.

During the last two or three days of June the patient had suffered from a "sore throat." On July 1, 1903, he called in his physician, Dr. Brown Darling, who found œdema of the uvula

and left side of soft palate, but without any evidence of false membrane; there was some elevation of temperature, and the patient felt ill, but at that time neither the voice nor respiration were interfered with. On the following day, however, he experienced some difficulty in breathing, and at 5 a.m. on July 3 the difficulty became intensified, and Dr. Darling was again sent for. Steam inhalations were ordered, and preparations were made for possible tracheotomy. At 9 a.m. the breathing became much worse, and I was telephoned for; but just before my arrival Dr. Darling found it necessary to open the trachea. Neither at the time of the operation nor later was any membrane seen, nor was any coughed up.

Two days later I examined the larynx. There was still œdema of the uvula and soft palate; the epiglottis was markedly swollen and rigid, reddened, and curved backwards upon itself; both arytenoid regions were swollen, and no view could be obtained of the interior of the larynx; no membrane was visible. The diagnosis made at this time was that of acute septic infection of the pharynx and larynx. The tracheotomy tube was removed on the tenth day, respiration then being comfortable. Dr. Darling reported that there was still considerable swelling of the upper laryngeal aperture.

The patient spent August and part of September in the country enjoying his holiday, and was only conscious of slight inspiratory difficulty occasionally during exercise. His voice was never affected. On October 9 I again examined him, and found a pale œdematous-like infiltration of the uvula and left side of the soft palate; the epiglottis swollen and curved backwards, narrowing the upper laryngeal aperture; both arytenoid regions, especially the left, were swollen and of a pale colour; the posterior end of the right vocal cord, presenting a natural appearance, could just be seen with difficulty. There was no evidence of any laryngeal ulceration. In other words, the local appearances were still very similar to those observed in July, with the absence, however, of the acute inflammatory signs. The voice was normal; there was no pain on swallowing, and occasionally only some slight respiratory embarrassment. There were no enlarged cervical glands.

A further consultation was now held with Dr. McBride, who recommended a course of antisyphilitic treatment. Potassium iodide was administered internally, and mercury by inunction. Treatment was carried on very consistently for two months, and I again examined the larynx on December 8, 1903. The local condition was very much the same as at the previous examina-

tion, but apparently the left lateral wall of the pharynx had become swollen, and presented an appearance very similar to that of the soft palate. The patient felt better—he was able to go about his daily work; sometimes he experienced a little difficulty in swallowing, and in foggy weather he was conscious of a choking sensation. A small piece of tissue was removed from the infiltration on the lateral pharyngeal wall, and treatment was discontinued. Microscopic sections of the piece of tissue removed showed no evidence either of tuberculous or malignant disease. The connective-tissue spaces were œdematous, the blood-vessels, arterial and venous, were much engorged, and there were areas of small-cell infiltration. The appearances suggested somewhat the existence of lymphatic obstruction.

The appearances observed in this case and its progress recall the description of the patients shown and referred to by Sir Felix Semon at the meeting of the Society held on November 7, 1902. In these cases, as in this, the difficulty of diagnosis presented itself. In the present instance I have never observed the peculiar yellow colour of the infiltration to which Sir Felix Semon drew attention, but otherwise the similarity appears fairly well marked. Malignant disease may be excluded on the ground that such marked local infiltration of a malignant nature could not be present without ulceration, dysphagia, enlargement of glands, and general cachexia. Tubercle, I think, may also be excluded on account of the absence of evidence of tuberculous disease elsewhere, while the patient is free from cough and expectoration, and enjoys otherwise excellent health. The condition has, so far at any rate, not proved amenable to potassium iodide and mercury, in spite of a thorough trial of these drugs. It is impossible to say definitely whether the present condition dates from the acute illness in June, 1903, or whether that was merely superimposed upon a chronic infiltration such as at present exists.

The PRESIDENT said it seemed a case of great interest, and Dr. Turner was anxious to have opinions upon it. Dr. Turner had brought the case to him to see, and after consultation they had difficulty in arriving at a definite conclusion. It seemed to him from the history that the case must be either specific or some form of infiltration associated with obstruction of the lymphatics, the nature of which he was unable to recognise. Antispecific treatment had no definite effect in diminishing the condition; it seemed as marked as when first seen. He would be glad to have the opinions of those who had seen similar cases.

Sir FELIX SEMON said, as regards the reference which

Dr. Turner had made to a case he had shown, he confessed that he could not agree that this case now under discussion was very similar to his own. As a matter of fact, unless Dr. Turner had mentioned the connection, the thought of these cases would hardly have occurred to him. In all his cases the infiltration was much more marked and general and the yellowish colour much more pronounced. Here certainly the uvula had a somewhat infiltrated aspect and was yellowish in colour, and a similar condition, though in a minor degree, was to be seen on the epiglottis, but there was not nearly so much infiltration and peculiar yellowish colour as in his own cases; but what differentiated it more particularly was that the infiltration was not nearly so universal. If the explanation of the case lay in its being due to some particular obstruction of the lymphatic glands, the infiltration should be more general. He was not prepared to give any opinion as to the nature of the case.

Dr. DUNDAS GRANT had under his care a case somewhat resembling this, but very chronic in its course. He took the opportunity of showing the case to Dr. Hajek, who thought it extremely rare, and had only seen one or two cases. In his opinion it was a kind of lymphadenoma, which was due in reality to infiltration with small-cells. The Society was now getting a considerable collection of these cases of what might be roughly called chronic œdema. In one case which he had shown to the Society great improvement was taking place under mercurial inunctions, and it was probably tertiary syphilis. Other cases which had been reported turned out to be tuberculous. It would be interesting if the after-history of this case could be brought before them.

In reply, Dr. LOGAN TURNER said he would certainly keep the patient under observation, and if any definite diagnosis was arrived at he would let the Society know. The microscopical sections practically revealed nothing. The connective-tissue spaces were somewhat loose and œdematous. The blood-vessels were a little thickened here and there, and round about them there was a certain amount of small-cell infiltration, suggestive of a chronic inflammatory condition, but there was nothing very definite. As regards the question of tuberculosis, looking at the laryngeal condition, the pale œdematous inflammation of the arytenoids was certainly suggestive.

Dr. KELSON showed a *Case of Epithelioma in the Cricoid Plate Region in a Woman aged thirty.*

Patient, first seen a week ago, came complaining of difficulty in swallowing of six months' duration; these symptoms had been



previously attributed to nervousness and hysteria. On examination there was seen at the back of the arytenoids a whitish-looking mass, hard to touch; and a piece removed, on microscopical examination, pointed clearly to epithelioma. There were a few enlarged glands in the right supraclavicular region. Advice as to treatment was requested.

Mr. ATWOOD THORNE showed a *Case of Malignant Disease of the Nose in a Man aged Seventy.*

The man was first seen at the London Throat Hospital about January 1. He then complained of blocking of the right nostril. On examination it was found that the nostril was blocked by a soft granular mass arising from the outer and also inner walls of the vestibule. A small portion was removed by the snare for microscopic examination, and proved to be epithelioma. When next seen, some three days later, he could breathe through his nose, and a further portion was removed, partly to relieve and partly for further investigation. The man can now breathe freely through the nostril, but the vestibule still contains much soft granular material; the mucous membrane on the right side has become everted, the whole nose is increased in size, and malignant disease is undoubtedly present; there are, however, no enlarged glands. What treatment is to be adopted? Should the whole nose be removed, the upper jaw split, and part of the septum be removed; or what? The patient says he is seventy years old, but looks more.

Mr. H. BETHAM ROBINSON showed a *Case of Syphilitic Necrosis of Sphenoid.*

L. R—, aged twenty-six, contracted syphilis in India six years ago. Three years ago he received a blow on the head. In November, 1902, noticed swelling in right temporal region accompanied by pain in the head, and in February was discharged the service. He first came under my care in May last for swelling over the right upper jaw and in the right temporal fossa; there was a purulent nasal discharge, especially from the right side. There was neuralgic pain over the right side of the face. Examination showed pus far back in the right nasal cavity, especially on the mesial aspect of the middle turbinate; with the rhinoscope granulations and polypi covered with pus could be seen on the roof and right wall of the naso-pharynx, extending into and partially blocking the right posterior choana. With the finger it could be made out that the root of the internal pterygoid plate was necrosed, but this bone was quite firmly fixed. Transillumination showed

no pus in maxillary or frontal sinuses. Iodide of potassium reduced the swelling and pain considerably. Since that date examination has shown that gradual separation is taking place of a necrosed portion of the sphenoid, which is now getting loose. As the extent of the sequestrum is doubtful, no forcible measures have so far been attempted to remove it. The separating fragment in the midst of granulations can now be distinctly seen with the rhinoscope.

Dr. WATSON WILLIAMS asked Mr. Robinson how he confirmed the diagnosis; the mere rhinoscopic appearance alone was only sufficient to suggest the sphenoid cavity as the source of the purulent secretion.

Sir FELIX SEMON had recently had an exactly analogous case in private practice. The necrosed bone, when he touched it, seemed to be absolutely fixed. Dr. Lieven, of Aix-la-Chapelle, had already advised that nothing forcible should be done, and, as he entirely agreed with that view, he waited till the bone should become more loose. A week after probing it it came away spontaneously, leaving hardly any scar. In his case the necrosis was in exactly the same position as in this case of Mr. Robinson's.

The PRESIDENT had had a case practically the same in every detail, except that the disease began in the frontal sinuses, which he opened. There were obviously areas of necrosed bone, which were immobile, and only came away a long time afterwards. In the same patient there was also ulceration going on in the region of the sphenoid, and a very large part of the sphenoid bone was brought away after having been first *loosened* from its original *fixed* position by hawking on the part of the patient.

Mr. ROBINSON, in reply to Dr. Williams, said he had confirmed the diagnosis by his finger, which he had introduced several times to feel the state of affairs and to what extent it went; the base of the internal pterygoid plate was chiefly involved. The chronic periostitis went right through the sphenoid to the outer side, and there was still marked swelling in the temporal fossa.

Mr. H. BETHAM ROBINSON showed a *Case of Left Abductor Paralysis*.

Female, aged thirty-one, married, with indefinite history of syphilis. Left cord in mid-line with good tension; no local explanation why; nothing to be detected in the chest; no evidence of involvement of other nerves, and no sensory defects.

Dr. WATSON WILLIAMS referred to several points of great

interest in the said case. Thus, he observed that there was great increase of the pulse-rate, which was 124 when they counted it. From examination of the larynx he did not think there was any very obvious laryngeal cause for the paralysis. But the patient had Romberg's symptom, and could not stand up with the feet together. He considered that whenever there was persistent and increased frequency of the pulse without obvious cause (such as febrile temperature or lung disease), associated with abductor paralysis of the larynx, it was extremely suggestive of some bulbar implication. He would suggest that this case of paralysis might be due to some incomplete form of tabes dorsalis or other bulbar complication of the central nervous system.

Mr. PERMEWAN thought the cord was in the cadaveric position.

Dr. D. GRANT asked whether the term abductor paralysis was the best to be employed in this case. It was more like a case of complete recurrent paralysis with the vocal cord in the cadaveric position.

In reply, Mr. ROBINSON could not agree with Dr. Grant's last statement; in his opinion it was a case of left abductor paralysis. The voice was practically unaltered. The left cord was exactly in the middle line and of good tension.

Dr. PEGLER showed a *Case of Crumpled Septum in which, the Hard Structures having been freely excised nearly Four Years ago, the Intact Muco-perichondrium remained Unstiffened.*

The patient, a gentleman aged sixty-one, sought relief on account of deafness and right-sided nasal obstruction in December, 1899.

The right nasal chamber was stenosed by a deflection of the septum to that side, commencing near the roof and descending to make contact with the right inferior turbinal, leaving a small space above the floor, which allowed a probe to pass. Examination under cocaine showed that the deflection visible from in front was separated by an intermediate space from a posterior deviation in the region of the vomer and ethmoid plate, and that the acutely angular horizontal concavity visible on the left side was correspondingly interrupted. These conditions prevented the patient from clearing his nose on the right side and impeded respiration, moist secretion persistently hung between the closely apposed surfaces.

In May, 1900, he requested to be relieved of the chronic catarrhal symptoms and constant stuffiness. Under cocaine

anæsthesia the operation was commenced by excising the projecting cartilage of the right side, firstly with the septum knife, and afterwards with the saw when ossification rendered this necessary. In this manner the deflected part was removed in two large and one smaller fragments, the muco-perichondrium of the left side was left intact, its white, glistening surface showing conspicuously. About a quarter of an inch of the vestibular septal cartilage was left standing, and still remained. Some of its free edge as well as of the anterior free edge of the posterior segment required trimming with punch forceps, as it tended to project too much towards the lumen of the chamber. The clearance thus made brought a rather large polypus into view, dependent from the border of the right middle turbinal; three were eventually removed, and have not recurred. An india-rubber splint was worn on the right side for some time, which kept the proximal and distant extremities of the remains of the cartilage in line and prevented adhesions.

Examination of the patient showed the muco-perichondrium of the left side imperforate and quite mobile and limp when palpated with a probe. The horizontal grooving was to some extent preserved, but breathing on the right side was perfect, and there were no symptoms. The hearing, which was most affected on the stenosed side, had greatly improved for conversation.

Dr. STCLAIR THOMSON said that pathologically the case was of interest to them not only *per se*, but also in connection with those septal operations which were coming into vogue. The point was that the muco-periosteum of one side did not appear sufficient to reproduce cartilage. He would like to hear from Mr. Tod whether there was re-formation of cartilage in any of his cases. This case had an intact muco-periosteum on one side, yet it was not enough to manufacture any cartilage.

Mr. H. TOD said that from the cases he had seen he would not like to say definitely whether there was or was not any re-formation of cartilage; but six months after the operation the septum was more stiff than immediately after it, although not absolutely hard; on touching it one could feel it was stiff, but could make an impression on it with a probe.

Dr. PEGLER hoped Mr. Hunter Tod would allow the Society to see a case of his in which a deposition of stiffening material, whatever it might be, had taken place after a Krieg-Bönninghaus operation. There was no trace of anything of the kind in his own case, but this might happen perhaps when both mucous surfaces were preserved.



MR. DE SANTI showed a *Man with Laryngeal Vertigo*.

This patient, a man aged fifty-five, was shown at the Laryngological Society, March, 1899,<sup>1</sup> as a case of laryngeal vertigo, by Mr. Atwood Thorne. He was then under Mr. William Hill's care at St. Mary's Hospital, and complained of severe attacks of coughing, followed by giddiness and lurching towards his right front. He had had these attacks of coughing on and off for two years, but the condition had been gradually getting worse. He was slightly deaf, had polypoid hypertrophy of both middle turbinals, some lymphoid hypertrophy at the base of the tongue, and some swelling in the interarytenoid space.

At the meeting some members were of opinion that the vertigo was of antral origin, and Dr. StClair Thomson suggested cardiac syncope. I was asked to see the man about the end of December, 1903, he being an in-patient at Westminster Hospital, under Dr. Purves Stewart. I found that he gave a history of similar attacks of coughing, vertigo, and semi-consciousness, and at such times his breathing was very embarrassed.

On examination I came to the conclusion that the mobility of his cords was impaired, the right not moving well in abduction. This seems to vary, and on writing to Dr. Hill about the case he told me that when the patient was under his care the amount of mobility of the cords varied, abduction never being good on either side, and that he suffered from hypertrophic laryngitis, with hoarseness and occasional attacks of spasm and loss of consciousness. On several occasions the breathing was so bad that Mr. Hill was on the point of doing tracheotomy. I bring the case before the Society again, as it is now some years since the members saw him, and the patient has remained, as regards the attacks of spasm and semi-consciousness, very much *in statu quo*, and because it is interesting to note that though he has had severe suffocative attacks, they have always passed off safely; and Mr. Hill's judgment that tracheotomy should be avoided if possible, seeing the serious drawbacks to wage earning which a patient with a tube labours under, has been perfectly justified.

The PRESIDENT said the man had the attacks chiefly after coughing; this fact confirmed the view he took years ago that it was really backward pressure on the thoracic organs which caused the attacks.

Dr. D. GRANT said the pulse was extremely soft.

<sup>1</sup> JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, vol. xiv, p. 253.

(To be continued.)

## Abstracts.

### NOSE AND ACCESSORY SINUSES.

**Francis, Alexander.**—*On the Nature of the Connection between Asthma and the Nose.* "The Clinical Journal," January 20, 1904.

The author thinks that the only point upon which physicians seem to be at all generally agreed is that at the present time damage is being done by too free surgical interference with the nasal apparatus. He communicates the two following theories as those commonly accepted on the subject:

1. That nasal obstruction, by interfering with the nasal respiratory function, prevents the inspired air from being either properly warmed or purified before entering the lower respiratory tract. Consequently the delicate bronchial mucous membrane is exposed to changes of temperature and to the irritation of various inspired particles, for which it is not prepared. Bronchial catarrh results, which in turn produces asthma.

2. That certain nasal lesions act as the sensory exciting cause of a reflex, which manifests itself as an asthmatic paroxysm.

These theories Dr. Francis proceeds to pull to pieces, entering, in the case of the second one, into a discussion as to the relation between asthma and nasal polypi. He infers from the following facts that polypi do not commonly supply the exciting cause of the asthmatic reflex:

1. The removal of polypi by no means always relieves asthma.

2. Not infrequently the asthmatic condition becomes aggravated after polypi are removed.

3. Occasionally asthma makes its first appearance after the removal of polypi.

4. A marked insensibility of the nasal mucosa is nearly always found associated with the presence of mucous polypi.

As it is undoubtedly the morbid activity of the respiratory centre which is really responsible for all dyspnoea (save that due to direct mechanical impediment), therefore all asthma is fundamentally the same. Gastric, cardiac, and spasmodic asthma, which we are asked to believe have nothing in common, are fundamentally identical, differing only in the nature of the exciting cause. If, then, the connection between asthma and the nose be one between the respiratory centre and the nose, and further, if the stability of the respiratory centre can be more or less controlled by treatment of the septal mucous membrane, far-reaching effects should be achieved. Putting the assumption to a practical test, the author now treats asthma by cauterising the septal mucosa not only in nasal, but in cases apparently bronchial, gastric, or cardiac.

Of 543 cases of all kinds of asthma thus treated, 316 obtained complete relief, 157 great relief, 15 temporary relief, 16 slight relief, 24 no relief, and 15 were lost sight of.

*Macleod Yearsley.*

**Roques (Cannes).**—*Treatment of Ozena by Collargol.* "Archives internationales de Laryngologie, etc.," January and February, 1904.

The author records a number of cases where the use of this preparation has had most gratifying effects. The method of employment is as follows:—The nasal mucous membrane is cleansed from all crusts and discharge, dried, and then a powder composed of collargol and sugar of

milk in the preparation of 1 in 30 insufflated twice daily; as the condition improves the proportion of collargol and the frequency of the insufflations are lessened. The powder acts better than solutions or ointments, and improvement amounting to a cure has resulted in four or five days. A little of the powder should be insufflated along the floor of the inferior meatus, so as to reach the posterior wall of the pharynx, and also some directed towards the septum and superior turbinate.

Anthony McCall.

**Mignon** (Nice).—*Catarrh of the Frontal Sinus, with Obstruction of Frontal Canal.* "Annales des Maladies de l'Oreille, du Larynx, du Nez, et du Pharynx," December, 1903.

Dr. Mignon records a case of a woman, aged thirty, who complained of great pain in the region of the left frontal cavity; transillumination showed the left side darker than the right. Treatment by local application of cocaine, inhalations of menthol, and washing out by means of the catheter gave no satisfactory relief. On opening the frontal sinus only mucous secretion was present; drainage *via* the nose was made good, the external wound healed by first intention, and the patient was cured. The author believes that in most cases the mucous precedes the purulent stage, and such cases should be treated early.

Anthony McCall.

## TRACHEA.

**Neumann.**—*Syphilis of the Trachea and Bronchi.* "Wiener Klinische Rundschau," January 3, 1904.

Specific disease of the trachea and bronchi has been often observed as a symptom of late syphilis either along with gummata of the larynx or without any other such tertiary symptom.

Gummata of the larynx tend to break down, and the cartilage becoming involved leads to necrosis, luxation, or fracture. The healing of these ulcerations brings about the formation of fibrous-tissue bands and cicatricial protuberances of the mucous membrane with resulting narrowing of the lumen. Serious dyspnea may afterwards ensue, and with the bronchi also affected a condition of tracheal bronchial stenosis may exist. Such a condition may, rarely it is true, be secondary—a packet of enlarged, hard, lymph-glands pressing on the trachea and bronchi.

Besides the danger of death being caused by suffocation, there is a case of fatal hæmorrhage reported by the ulceration extending into a branch of the pulmonary artery, and a phlegmonous inflammation in the anterior mediastinum from ulceration at lower end of trachea has been observed.

Tracheotomy has in many cases been very unsatisfactory, but of fourteen cases collected together by Vierling, in each of which tracheotomy was performed, twelve died.

As yet laryngologists regard as somewhat uncertain operations for removing the cicatricial bands and connective-tissue protuberances in the trachea or bronchi. Such operations are difficult because of their situation and because of the great tendency to an early recurrence of adhesions and new band formations, etc.

Neumann describes in detail an interesting case of multiple tracheal stenosis with bilateral bronchial stenosis.

A. Westerman.

## EAR.

**Alt., Ferdinand.**—*Foreign Body in the Middle Ear.* "Wiener Klinische Rundschau," January 10, 1904.

Two cases described in which somewhat extensive operations were performed with subsequent complete recovery.

1. A patient in whom a small four-cornered piece of stone had been driven into the middle ear by unpractised hands endeavouring to remove it.

2. A currant-seed, which had also been pushed into the middle ear, caused a serious otitis externa, and had to be extracted by a post-audicular operation.

*A. Westerman.*

**Braunstein.**—*The Telephone and Hearing.* "Archives internationales de Laryngologie, etc.," January and February, 1904.

The author has investigated the effects the varying sounds operators experience in a telephone exchange have on the hearing, and mentions that at the Munich Exchange out of 450 successive operators, 150 have left, but never on account of any ear lesion.

*Anthony McCull.*

**Jakins, Percy.**—*Notes on a Case of Otitic Cerebellar Abscess; Trephining Middle and Posterior Fossæ; Recovery.* "The Lancet," January 30, 1904.

The patient was a girl aged twelve years. Discharge from the left ear had followed scarlet fever nine months previously. The symptoms complained of were severe pain over left mastoid and in posterior triangle, nausea, vomiting, and vertigo. The meatus was full of offensive discharge concealing granulations. There were partial right facial paralysis, slight want of grip in right hand (patient right-handed), exaggeration of both knee-jerks, dilated left pupil, left optic neuritis, drowsiness, and foul tongue; the temperature was 97.2°, pulse 72. At operation the antrum was found full of granulation tissue, and there was pus coming from a small aperture in the upper and posterior part of the cavity. This being enlarged, about a drachm of very offensive pus was evacuated. Great improvement followed for five days. Then the discharge became offensive and the patient drowsy. There was head retraction, dilated pupils, and slow cerebration; the temperature was 98°, pulse 60 and intermittent, respirations 24. Next day symptoms were more defined, patient being unconscious except when pinched. The day following both middle and posterior fossæ were trephined, and twelve drachms of very foetid pus evacuated from the cerebellum. The patient was greatly improved next day. A little over a month later a slight fluctuating swelling was noticed over the posterior fossa opening, from which a little pus was liberated by incision. Three weeks after a slow pulse and subnormal temperature required another exploration, and one ounce of pus was evacuated. Two months later the patient was discharged cured.

*Macleod Yearsley.*

**Spalding, J. A.** (Portland, Me.)—*Should the Deaf be debarred from Accident Insurance?* "Arch. of Otol.," vol. xxxii, No. 4.

The writer, being the subject of deafness, speaks feelingly in favour of the deaf being accepted. He points out how his keen sensibility to vibration led him to step aside before persons with good hearing realised the approach of a runaway horse. (In his case there was good "bone-conduction" and apparently "better hearing in a noise.") The watch-



fulness of the deaf is another source of safety. Again, he considers that presence of mind and agility are more important factors than sharp hearing. On examining a number of claims he found that out of 13,000 only seventeen could be attributed to deafness. *Dundas Grant.*

### THERAPEUTICS.

**Burchard.**—*The Therapeutic Use of Pyrenol (a) in Asthma and Pertussis, (b) Gout and Sciatica.* "Deutsche Aerztezeit:" Heft 20, 1903.

Out of a large amount of clinical material, six typical cases are reported in which pyrenol was of much use. In the cases of bronchial asthma relief was obtained after the first dose; the improvement was steady and continuous, and in two to three weeks the asthmatical attack had quite gone. In cases of whooping-cough a like effect was obtained. Only very exceptionally was a narcotic given in addition. In gout a much larger quantity must be given, 4 to 5 grammes (60 to 70 grains).

*A. Westerman.*

### MISCELLANEOUS.

**Kaufmann.**—*Congenital Serous Cyst of the Neck.* "Revue Hebdom. de Laryngol., etc.," October 17, 1903.

A little girl, aged four, had a large tumour in the right side of the neck, reaching from the mastoid process to the sternal notch, and from the angle of the jaw to the anterior margin of the trapezius. The tumour was first noticed when the child was six months old, and it attained its full size about the age of two years. The skin was freely movable on the tumour, and was not unusually hairy. The tumour was bilobed, being divided by the sterno-mastoid; it was movable, tense, and fluctuant, giving a dull note on percussion. Several hard lumps could be felt on palpation, like inflamed glands. Its volume could not be reduced by pressure. It did not interfere with voice, respiration, or deglutition.

Diagnosis was comparatively simple; in the first place all tumours arising from structures in the middle line could be excluded, such as thyroid cysts, etc. Diffuse lipoma was excluded by the state of the skin, and by the presence of definite fluctuation; air tumour was obviously excluded; lastly, angioma was excluded because the patient's own doctor punctured the tumour without giving rise to any hæmorrhage.

The cyst was dissected out through a long incision in front of the sterno-mastoid. It was not prolonged downwards into the thorax, nor upwards to the buccal cavity, therefore could be completely removed. It was adherent at one part for some distance to the deep vessels. The hard lumps mentioned above proved to be small pockets, more or less shut off from the main cavity and filled with old blood-clot. The main cyst contained about 100 grms. of sanguinolent serum.

*Arthur J. Hutchison.*

BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

THE next general meeting will be held at 11, Chandos Street, W., on Friday, March 11, at 4 p.m. The annual dinner will take place the same evening at the Imperial Restaurant, Regent Street, W.

THE  
JOURNAL OF LARYNGOLOGY,  
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**SOME POINTS IN THE ANATOMY OF THE TEMPORAL BONE.**

By R. C. ELSWORTH, M.D., F.R.C.S.ENG.;

Surgeon to the Swansea Hospital.

I do not propose in this place to enter into any detailed account of the temporal bone as a whole, nor is it necessary in the present day, for it might well be thought that surely enough has been written about that particular part of human osteology. Yet there are some points in connection with this bone which, I venture to think, will well repay a little careful attention, and are of importance to the practical surgeon.

The great importance which has come to be attached to this bone in relation to suppurative disease of the middle ear, and the intimate relation of the bone to the brain and its membranes and to the great venous channel grooving it, increase the interest of all points of anatomical detail which may throw light on the pathological conditions found and on the mode of extension of disease. It is well known that serious or fatal cases of middle-ear disease occur, the explanation of which cannot be given on any solid basis of anatomical continuity, and must therefore be more or less speculative and to the same extent untrustworthy. It is only when we know the direct path of invasion and extension of disease that it is possible for us to advance along the line of rational treatment, preventive or curative as the case may be.

A complete knowledge of the anatomical details of this bone

(were such a thing possible) would greatly facilitate our understanding of the phenomena of disease, enlarge our power of interpreting signs, and increase our capacity to deal with the varied and complex problems presented by patients suffering from disease of this bone.

It may safely be asserted that when Cicero wrote, "Sanguis per venas in omne corpus diffunditur et Spiritus per arterias," the recognition and treatment of aneurysm was not as it is now, nor were cases of phlebitis as safe as the greater anatomical knowledge of the present day has made them.

It has seemed of importance to place this subject with some fulness before the profession, as from the notices in the journals there seems to be some confusion as to the exact points which have been brought forward at the two Meetings of the British Medical Association at which specimens were exhibited, and at which some discussion took place.

*The Petro-mastoid Cone.*—The petro-mastoid portion of the temporal bone is irregularly conical in shape, and consists of a thin shell of compact bone containing a core of spongy tissue, the apex of which abuts on the posterior boundary of the tympanic cavity. In sections made in the particular way shown in Fig. 1 the whole of the spongy tissue is brought into view, and it is then seen to be readily and naturally divisible into two parts—an anterior or inner and smaller part, composed of fine spongy tissue, with small mesh and fine trabeculae; an outer or posterior part, which forms the mastoid region and base of the cone, in which the sponge-work is coarse, the mesh large and irregular, and the trabeculae strong, Figs. 2 and 3.

Although the spongy tissue may, for convenience of description, be thus spoken of as consisting of two parts, it is not to be supposed that the parts are in any way separated. The spaces all intercommunicate, and the entire spaces of the petro-mastoid cone may be injected with any fluid injection mass. A simple method of illustrating this fact is to warm a temporal bone after plugging all the larger apertures, and to inject the bone from the Eustachian canal with hot paraffin coloured with some aniline dye, and at once drop it into cold water to solidify the wax. During the injection it will be found that the hot wax escapes from numerous apertures in the bone which were not previously known to exist. At the time of injecting, or at any rate afterwards, when the redundancy of wax has been removed, it will be noticed that the wax has escaped from an aperture at the upper part of the sigmoid groove, Fig. 6. Of this aperture more will be said later. If

PLATE IV.



FIG. 1.—TO SHOW LINES OF SECTION.



FIG. 2.—TO SHOW SPONGY TISSUE WITH ANTRUM AND ACCESSORY ANTRUM.

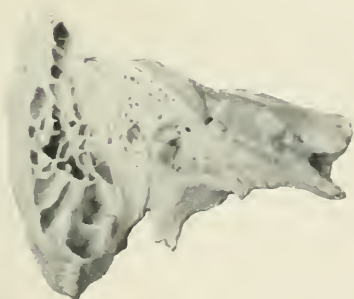


FIG. 3.—SHOWING SPONGY TISSUE OF MASTOID REGION, ACCESSORY ANTRUM, WITH THIN PLATE OF BONE ABOVE, AND BRISTLE IN CANAL FOR ANTRO-SIGMOID VEIN.

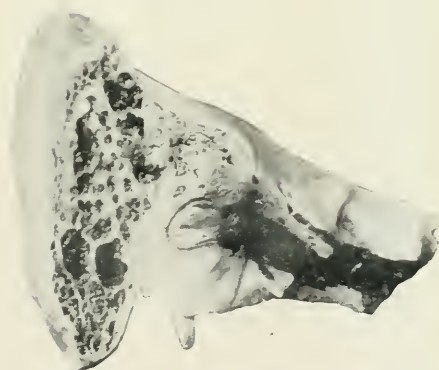


FIG. 4.—INJECTED SPECIMEN, SHOWING MASTOID CELLS AND ACCESSORY ANTRUM FILLED WITH WAX.





now the bone be sawn through along the lines already referred to and the sawdust be removed, it will be found that the whole of the spaces of the bone have been filled with the injected material and the sponge-work has been converted into a solid mass, Fig. 4. In this way it may be shown that the spaces freely communicate with one another. Nor is this to be wondered at, for in life the spaces are filled with air derived from the tympanum through the Eustachian tube.

Returning to the dry bone, it will be observed that the antrum is a cavity in the fine spongy tissue of the apex of the core forming the interior of the cone, and that it is surrounded by spongy tissue except in front, where it communicates with the tympanum. Looking at the mesh-work of the base of the cone it will be noticed that spaces extend upwards to the superior border of the petrous bone, and that the plate of bone separating the spaces from the sigmoid groove is translucent. At the upper limit of this region of the bone there is to be seen a space which is fairly constant. It is always present in bones with a cellular mastoid. Of course it is well-known that some mastoids are almost solid, and in such bones this space is very small or only represented by cancellous tissue. In bones with a cellular mastoid this space is always present, and varies in size from an eighth of an inch to that of a small hazel-nut, in which case it communicates with the diploë, Figs. 2, 3, 4, 5, and 8. Further, it will be observed that this space overlaps the aperture from which the injection mass escaped into the sigmoid groove. It is also separated from the temporo-sphenoidal surface of the bone by a thin plate. We may define its position by saying that it is situated posteriorly, externally, and a little superiorly to the antrum; that it is under cover of the outer extremity of the superior border of the petrous bone; that it abuts on the sigmoid groove, from which it is separated only by a thin plate of translucent bone; and that it is at the upper extremity of the mastoid cells, with which it freely communicates. Furthermore, that the antrum has no direct relation to the sigmoid groove, its connection with the sigmoid groove being through the spongy tissue behind it, of which the space above referred to is an important link. Because of this importance I venture to call it the "accessory antrum," and as such it will be referred to throughout this paper.

If now a bristle be passed from the sigmoid groove through the foramen near its upper extremity—the foramen from which the injection mass escapes,—it will be found that the bristle passes in some cases into the accessory antrum or runs along its posterior

wall towards the antrum, Figs. 5 and 6. Either of these routes is the most common, but there are other courses which the bristle may take, though these will be dealt with later.

Let us now suppose a case of suppurative middle-ear disease with extension to the mastoid. What is the condition of the spaces of the mastoid? They are filled with pus, and the muco-periosteum, as such, is more or less destroyed. The special cell at the upper limit of this region being in free communication with the rest of the spaces is also filled with pus; this pus can readily extend along the small canal to the sigmoid groove, and on to the cranial surface of the sigmoid sinus. So that in this way we can readily understand intracranial infection without erosion of the groove.

The foramen above described is not of mere accidental occurrence, but is constant, and serves a very definite purpose in the economy. In the living subject it lodges a small vein. This vein it will now be of interest to study. The spaces of the spongy tissue of the petro-mastoid cone are lined with a thin membrane, which is continuous with that lining the tympanum in front, and, extending through the various apertures in the bone, is continuous with the outer layer of the dura mater, and can be readily demonstrated in the petro-squamous fissure in bones where the fissure is persistent. The muco-periosteum is a vascular membrane, and though here we are not concerned with the source of the blood-supply, we are concerned with the mode in which the blood is carried away from the muco-periosteum of the spongy tissue.

In the muco-periosteum of the spaces surrounding the antrum there takes origin a small vein, which passes backwards, increasing in size as it goes by the confluence of smaller veins, and skirting the wall of the accessory antrum, it passes through the foramen in the sigmoid groove already described, and terminates in the sigmoid sinus on its anterior aspect just below the genu. This vein collecting blood from the muco-periosteum of the spongy tissue of the petro-mastoid cone, carries it backwards to the sigmoid sinus, and is so important in its bearings that it will subsequently be referred to in this paper as the "antro-sigmoid vein." This vein can readily be demonstrated in any case of post-mortem examination of the head. If, after the brain has been removed, the dura mater be gently stripped from the lateral and sigmoid grooves, the vessel will be seen entering the bone at the foramen already referred to. This vein can be injected with any thin, free-flowing, injection mass, and the injected material will be found on section of the bone in the interior.

PLATE V.

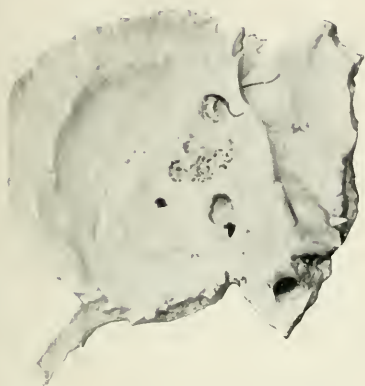


FIG. 5.—SHOWING ACCESSORY ANTRUM WITH BRISTLE PASSING TO GROOVE.

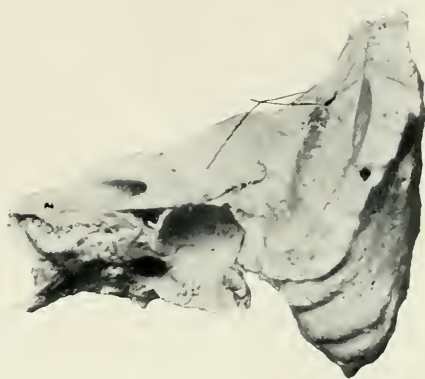


FIG. 6.—SHOWING SIGMOID GROOVE WITH BRISTLE IN CANAL FOR ANTRO-SIGMOID VEIN.

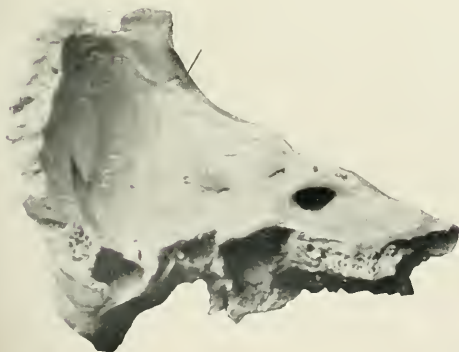


FIG. 7.—SHOWING GROOVE FOR ANTRO-SIGMOID VEIN ON SUPERIOR BORDER OF PETROUS PORTION.

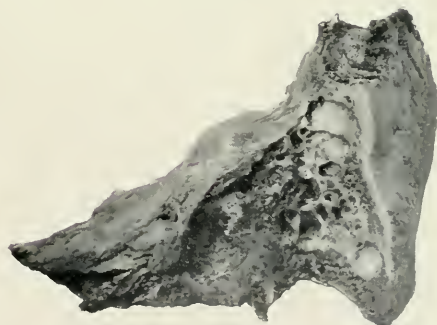


FIG. 8.—SHOWING ACCESSORY ANTRUM. MASTOID WITH SCARCELY ANY SPACES.





We may now turn to the consideration of this vein in relation to pathological conditions. It is well known to those who have any experience of operating on the mastoid that severe and fatal cases of intra-cranial infection and severe and fatal cases of general systemic infection occur in which the sigmoid groove is not eroded, and yet when the cranial cavity is opened through the groove, pus is found between the bone and the sigmoid sinus, and in some cases without pus the sigmoid sinus is found blackened and inflamed, the staining and inflammatory processes extending to the cerebellum. Or, again, without pus outside the dura, without thrombosis of the sigmoid sinus, without erosion of the sigmoid groove, the patient suffers from profound or even fatal septicæmia. How are these cases to be explained? It has been suggested that a mural thrombus has been formed and has become detached to be followed by a second thrombus, which anon shares the same fate as its predecessor, and so on. But no explanation is forthcoming as to the cause of the mural thrombus. Such explanations are purely speculative and at best uncertain. Let us turn to the anatomical facts and consider their bearing on this supposed anomalous condition.

The "antro-sigmoid vein," taking origin in the spongy tissue round the antrum, has its radicles absorbing blood from the seat of the disease. Suppose a case of chronic suppuration of the middle ear and the discharge pent up, or granulations ruptured, or fresh infection to take place. The venous radicles become infected, thrombosis occurs and extends along the "antro-sigmoid vein" until it finally pouts into the sigmoid sinus. With the blood-stream the pouting portion is washed off and launched into the general circulation, the process being repeated again and again. There is no gross pathological change going on in the immediate vicinity of the groove, and at the operation the groove is not found to be eroded. The sigmoid sinus is not inflamed and is not thrombosed. Nor is it necessary, for the infection has taken place at some distance from it. The "antro-sigmoid vein" need not be involved from its terminal radicles, it may be caught in any part of its course from origin to termination, but the effect will be the same.

Again, when pus has found its way into the mastoid region it can readily convey infection into the sigmoid groove through the foramen for the "antro-sigmoid vein." But the relations of the "antro-sigmoid vein" do not end here. The course and termination of the vessel described, though the most frequent, are not the only ones, and we may now consider the variations from what we have described as normal.

As already stated, the "antro-sigmoid vein" usually runs its course within the compact shell of the petro-mastoid cone, and it is usually a single vessel. But it may be represented by two, Fig. 8. In some cases the vein emerges from the interior of the bone and appears on the temporo-sphenoidal surface, and after running for a short but variable distance on that surface dips into the bone again and ends in the usual position in front and below the genu of the sigmoid sinus. But it may be asked what difference will this make. The difference is considerable. When the vein is on the surface of the bone it is in contact with the dura mater of the middle fossa of the skull and through the dura with the sub-dural space and the temporo-sphenoidal lobe of the brain. If septic thrombosis occurs in this vein it can readily convey the septic process to the dura, to the sub-dural space, and to the brain itself, giving rise to meningitis, local or general, and to cerebritis and abscess of the brain, according to the intensity of the process. But these conditions do not preclude the possibility of the original thrombus extending to the sigmoid sinus and producing general systemic infection.

There is yet another variation of the "antro-sigmoid vein" to which attention must be drawn. After passing backwards for some distance in the bone, the vein may appear on the temporo-sphenoidal surface and, passing backwards, end in the superior petrosal sinus, Fig. 7. The effects of thrombosis on a vessel having such a course would be similar to those just described on the dura mater, sub-dural space, and brain, but the thrombus in the vessel would in this case pour into the superior petrosal sinus, and as the blood-current is slow the thrombus would extend along the sinus in both directions from that point, and, while spreading to the sigmoid sinus and producing its effects there, it would also pass inwards to the cavernous sinus, from which other venous channels would become involved.

It has been objected that there is no justification in burdening the nomenclature of the temporal bone with two new names, and that the accessory antrum is only a space of the mastoid. Even assuming it to be a space of the mastoid, it is still an important space, because it becomes infected with the other spaces in the bone, but it is quite outside the usual area of operation and is likely to be overlooked in operating, and a focus of infection to be left. Again, this space occurs in bones quite isolated from mastoid spaces, Fig. 8, and in bones having no spaces of the mastoid a cavity will be found in this position. Moreover, when the space is large it communicates with the spaces of the diploë,

and channels pass from it to the soft tissues of the sutures, Finally, if the mastoid is to be held to extend to the superior border of the petrous bone, then there will have to be still further burdening of the nomenclature, if we are to define exactly what part of the bone we are speaking of.

The "antro-sigmoid vein" has been spoken of as a tributary of the petro-squamosal sinus. Now, I wish to state definitely that it is not a tributary of the petro-squamosal sinus. The petro-squamosal sinus lies on the surface of the bone and this vessel lies in the substance of the bone. It does not join the petro-squamosal sinus, but it does join the sigmoid sinus or superior petrosal sinus, the former most frequently. Again, suppose that the antro-sigmoid vein were a tributary of the petro-squamosal sinus, that does not in the least detract from its importance. The hæmorrhoidal veins are only tributaries of the portal vein, but no one will deny their importance when considered in relation to dysentery and abscess of the liver.

The details brought forward in this paper are hard anatomical facts which may be seen by any one who will take the trouble to make sections of the temporal bone and study them, and they throw an important light on the paths of infection and extension of disease in this bone; they explain in a simple manner some points concerning which we were in need of information, and they give indications as to treatment, on which I hope to make a further communication at a future date.

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### A FATAL CASE OF NECROSIS OF THE SPHENOIDAL AND POSTERIOR ETHMOIDAL CELLS; PHLEBITIS OF THE CAVERNOUS SINUS; PYÆMIA.

By A. L. WHITEHEAD, M.B. & B.S.Lond.;

Ophthalmic and Aural Surgeon to the General Infirmary at Leeds.

DISEASE of the sphenoidal sinus having attracted increasing interest during the last few years, it becomes of importance to record all cases possessing features of special interest.

The present case was that of a woman aged forty-seven, well nourished, and enjoying good health up to the time of the fatal illness, except for the presence for two years of a purulent discharge from the left side of the nose, said to have followed an attack of facial erysipelas. For five weeks there had been frequent and very severe



headaches and attacks of vertigo; for three days occasional attacks of vomiting, slight rigors, fever, and a general sense of malaise. The day before she came under my care she had an uncomfortable feeling of tension in the left eye, with diplopia, and her friends noticed that the eye was prominent and squinting.

On admission the temperature was found to be  $99^{\circ}$ , pulse 110, and respirations 28. Examination of the eyes showed both fundi normal, but there was some proptosis of the left eye, and movements of the globe were restricted in all directions. On examination of the nose thick creamy pus could be seen descending between the septum and the middle turbinate bone on the left side.

Ether was administered, and the left middle turbinate removed; the sphenoidal sinus was then explored, and the anterior wall found soft and carious, and the cavity full of pulpy material, pus, granulation tissue, and blood, the immediate posterior ethmoidal cells being similarly affected. The anterior wall of the sphenoidal sinus and the inner walls of the ethmoidal cells were removed, and the cavities cautiously but thoroughly curetted, and then lightly packed with iodoform gauze to check the hæmorrhage.

*Staphylococcus aureus* was found in pure culture in the material removed.

Next day there was no improvement in the general condition, the temperature being  $101^{\circ}$ , and the pulse 110, and the respiration 30. The headache and proptosis were unrelieved and the vomiting persisted. The heart-sounds were clear and normal, but the breath-sounds indicated some pneumonic consolidation at both bases. The evening temperature was  $103^{\circ}$ , pulse 132, respiration 44.

During the following day she grew rapidly worse, the face becoming deeply flushed and congested; the nose was purple and the cheeks mottled. This condition rapidly spread, and deepened in colour until towards evening the nose was almost black, the cheeks were covered with large purpuric blotches, and the arms and legs were much discoloured, resembling post-mortem staining. The mucous membrane inside the nose was almost black, quite hard and dry, practically no discharge coming away, although some crusts had formed in the upper and posterior parts. Breathing became very laboured, and the heart commenced to fail. No bruit could be heard, however. Examination of the blood revealed marked leucocytosis. A culture showed a pure growth of staphylococci. Death ensued early on the next day.

At the necropsy the lungs were found to be extremely congested and contained numerous recent infarcts. The pericardial sac contained about four ounces of serous fluid. The mitral valves were

thickened from old disease, but some recent vegetations were also present. The tricuspid valves were covered with fresh vegetations. The spleen contained infarcts, and there were some sub-capsular hæmorrhages in both kidneys. The walls of the cavernous sinus on the left side were softened, thickened, and deeply blood-stained, but the cavity did not contain any ante-mortem clot. The anterior wall of the sphenoidal sinus had been partially removed, together with the inner wall of the posterior ethmoidal cells; these cells, together with the sinus, contained blood-stained semi-purulent fluid; the remaining portions of the walls of these cavities were softened, carious, and deeply blood-stained. No disease was present in the anterior ethmoidal cells, in the antra, in the frontal sinuses, or within the orbit. The brain and meninges were healthy.

The condition was clearly one of chronic suppuration in the sphenoidal sinus and in the posterior ethmoidal cells, with an acute staphylococcic infection three or four days before she was first seen.

From the ocular symptoms, it is probable that the wall of the cavernous sinus was infected the day before the operation, and opening and draining the sinus and the cells were powerless to arrest the spread of the pyæmic infection.

The importance of treating chronic nasal suppuration is still not fully realised by our profession at large. A persistent discharge from the nose is regarded with the slight interest which a chronic otorrhœa attracted a few years ago.

A chronic nasal discharge cannot as a rule be regarded as carrying with it many elements of danger to life, and when the surgeon is consulted it is to obtain relief from pain, or from the discomfort of excessive or offensive secretion; nevertheless the present case illustrates the risk of leaving untreated a suppuration in close proximity to a vital organ.

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#### NOTES.

The ANNUAL MEETING of the BRITISH MEDICAL ASSOCIATION will take place at Oxford on July 26, 27, 28, 29. The Section of Laryngology and Otology will be held under the presidency of Mr. Charters Symonds, F.R.C.S. All communications with reference to the work of the section should be addressed to the Honorary Secretaries: Dr. Jobson Horne, 27, New Cavendish Street, London, W.; Dr. E. C. Bevers, 117, Woodstock Road, Oxford.

## SOCIETIES' PROCEEDINGS.

### PROCEEDINGS OF THE BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

*Ordinary Meeting, held at 11, Chandos Street, Cavendish Square, W.,  
Friday, January 29, 1904.*

*The President, Mr. JOHN BARK, in the Chair.*

The following gentlemen were elected Fellows of the Association :—

John Maclean Carvell, M.R.C.S. (London).  
Ernest H. Drinkwater, M.R.C.S. (London).  
Hugh Clayton Fox, F.R.C.S. (London).  
Richard Lake, F.R.C.S. (London).  
Thomas Lumsden, M.D., Ch.B. (London).  
Dan Mackenzie, M.D., C.M. (London).  
J. Sim. Wallace, M.D., D.Sc., L.D.S. (London).

The following communications were made :

Mr. MAYO COLLIER showed cases illustrating (1) *Intermittent Nasal Obstruction* ; (2) *Stages of Progressive Deafness*.

The PRESIDENT said the cases would be discussed later in connection with Mr. Collier's paper.

Dr. W. H. KELSON showed a *Case of Laryngitis in a Girl aged twenty*.

The patient had suffered from loss of voice for two months. The tonsils were much enlarged, and the ventricular bands swollen. The cords moved well, but the left was slightly ulcerated. No tubercle bacilli had been found in the sputa, and the disease was thought to be catarrhal laryngitis.

Dr. DUNDAS GRANT asked whether there were any signs of hysteria. The condition might be accounted for to a great extent by the inflammatory condition, but he thought there was a neurotic element in the case. The girl showed a tendency to phonate with the ventricular bands, though it was true she had been much disturbed by examination. She also had enlarged tonsils.

Dr. JAMES E. McDUGALL suggested that the enlarged tonsils should first be removed. This, while affording a better view of the

larynx and providing a freer breath-way, would be of service in doing away with any neurotic element which might be present, since the patient would experience the satisfaction that something practical was being done to relieve her.

Dr. Kelson, in reply, said he had not noticed any hysterical or nervous symptoms. It was his intention to remove the tonsils.

Mr. STUART LOW showed a *Series of Cases of Oral Sepsis treated by Kelvolin Vapour*.

Mr. Stuart Low said that specialists would doubtless readily admit that the treatment of suppurative conditions of the middle ear stands at present on a very unsatisfactory footing. It was agreed that bacteria kept up the continuation of the sepsis, and that this persistence was aided and abetted exceedingly by the peculiarly intricate anatomical arrangements pertaining in the tympanic cavity and its accessory recesses.

After trying various substances very exhaustively, he had selected *Kelvolin*, a chemical product prepared by Messrs. Hay, Steven and Co., Manufacturing Chemists, Mary Hill, Glasgow, as the best. He had used it in two ways—first, directly applied by means of cotton wool on a fine probe to granulations on the tympanic walls; and secondly, as a vapour. The vapour treatment he had found most efficient and satisfactory. He drove the vapour by means of an inflator into the external auditory meatus, and in this way it was forced into the farthest limits not only of the tympanum and attic, but backwards into the antrum and its adjacent cells, and downwards and forwards into the Eustachian tube. The patient plainly perceived it in the pharynx when the passage was sufficiently patent. He also forced the vapour up the Eustachian tube through an ordinary Eustachian catheter inserted through the nose, and thus additionally insured that a thin layer of condensed vapour was spread over the entire interior of the middle ear and its accessories.

Kelvolin is a dark-coloured fluid of an oily consistency and slightly tar-like odour. It contains 40 per cent. of the homologues of phenol and 35 per cent. of highly refined neutral products from coal tar. Kelvolin is prepared from highly refined materials, and is free from resin and free alkali. Kelvolin is a very powerful germicide—the staphylococcus, the streptococcus, and anthrax spores are all easily destroyed by it even when it is much diluted. It has the further great advantage that, so far from possessing any irritating properties when applied to the tissues, it has, in common with the phenols, an anæsthetic, numbing effect. It has further a



softening action on incrustations and considerable penetrative power.

Preliminary to using the kelvolin as described, the interior of the ear must be prepared for the vapour by being freed from all discharges. This being accomplished by most carefully and thoroughly mopping it out with fine light probes carrying boracic wool, and in this way the surface was cleaned and dried for the deposition of the condensed kelvolin vapour, any granulations being touched gently and lightly with kelvolin. This preparatory process was not complete until aerial inflation by the Eustachian catheter and suction by means of Siegle's pneumatic speculum had been repeatedly performed, and every particle of secretion thus blown and sucked out had been carefully removed by most assiduous and painstaking mopping.

The PRESIDENT regarded the results seen that day as very satisfactory and encouraging. He trusted the treatment would save many radical operations in the future.

Dr. DUNDAS GRANT said the vapour seemed a very valuable addition to the aurist's armamentarium. He regretted he had not tried it when he first heard of it from Mr. Stuart Low, and he intended to try it in his own practice at once. He asked whether the vapour could be sent into the accessory cavities of the middle ear. The power of the material to destroy the staphylococcus seemed unquestionable in view of Mr. Stuart Low's experiments.

Dr. D. VINRACE could not help saying he did not concur in the belief that the vapour was a grand addition to the aurist's armamentarium; he did not see in what respect it was superior to the remedies which had been previously used. When a new remedy was brought out he thought there should be some evidence forthcoming of a differential character; it was not enough to state the results on hitherto untreated cases. He accepted what was said for the time being, but thought equally good results were obtainable by the previous methods.

Dr. JOBSON HORNE said the thoughts expressed by the last speaker were similar to his own. The facts, that the treatment necessitated the use of a special apparatus, that it must be performed by the specialist personally, that patients could on no account be allowed to apply it by themselves, were all obvious drawbacks; and he inquired whether the benefit to be gained from using this preparation was so great compared with that to be derived from the remedies in use as to outweigh the disadvantages. Dr. Horne asked for details of Mr. Stuart Low's bacterioscopic investigations and bactericidal tests in connection with the preparation.

Dr. KELSON said the cases exhibited showed satisfactory results, but probably as good results would be produced in half a dozen cases taken at random in the hospital by means of boracic acid and other remedies. He asked whether Mr. Stuart Low had had any failures.

Mr. W. J. C. NOURSE said he had been much impressed by the way in which some cases that he had seen appeared to yield to the vapour although previously uninfluenced by treatment with ordinary remedies.

Mr. STUART LOW, in reply, thanked the fellows for their kind reception of the new treatment. He said he had been driven to use the preparation because he had failed lamentably in many cases. He tried such things as creosote, carbolic acid, and guaiacol. Then he saw a review of kelvolin in the *Lancet*, and was induced to try it. The great advantage which it possessed over carbolic acid was that it did not irritate if properly used. He claimed that the vapour could be driven into the ultimate recesses of the ear, unless there were granulations stopping the way. The strong point in its favour was that it succeeded as a germicide where other remedies had been tried and failed. He had shown two cases of Dr. Jakins's in which the usual treatment had been used, in one of them for three years. Some members had remarked that the ear in one case shown was not quite dry, but he reminded them that the middle ear was not normally a dry organ; it was covered by mucous membrane. The bactericidal powers of the preparation had been gone into in the laboratory. Cultures were taken of the bacteria before each application, and the treatment was pushed until the culture came out negative. The only difficulty was to get it into necrosed bone on which there was a shield of granulations. The granulations must first be removed, and then the preparation could be driven home. He had had no failures, but in one case in which the patient had the septic condition for years it was very intractable. However, after massaging the granulations with pure kelvolin it was beginning to yield. The serious symptoms had gone, and the patient was hearing better, but the discharge had not altogether ceased.

Mr. STUART LOW showed a *Case of Nasal Polypi in a Boy aged seven years*.

Mr. Stuart Low said that this case was from Dr. Dundas Grant's clinic. Professor Hajek had seen it when visiting the clinic, and showed great interest in it, and stated that he had never

seen nasal polypi at such an early age, and mentioned the risk of sarcoma developing.

The PRESIDENT thought the interesting point about the case was the tender years of the patient.

Dr. ANDREW WYLIE showed a *Case of Primary "Hard Sore," on the Lip of a Woman.*

F. E——, aged forty-seven, charwoman, stated that last August (six months ago) she was kissed by a lodger, who she now remembers had some disease of her throat. Three weeks later, after not feeling well, a sore appeared on her lip, but she did not pay much attention to it. About the middle of October she had a severe sore throat, and attended a general hospital for fully two months, getting no relief. On January 11 she attended Dr. Jakins's clinic at the Central London Throat Hospital with distinct manifestations of secondary syphilis: as symmetrical patches on the throat, swelling of the glands, rash on the chest, and this hard sore on the lip, with very little ulceration. These symptoms had disappeared to a great extent under three weeks' treatment. There was nothing very special about the case except that it was uncommon to see the primary sore on the lip.

The PRESIDENT said it was the first case of the kind which he had seen.

Dr. JOBSON HORNE agreed that such cases were uncommon; speaking from memory, he had seen five in which the primary sore occurred on the face.

Mr. NOURSE said occasionally puzzling cases were met with where there was no trace of a primary lesion to be found at all. When the question naturally arose, Might not syphilis occur without any primary manifestation whatever? Might a patient become inoculated and pass at once to the secondary stage? He had under treatment at the hospital a man, aged twenty-one, whose mouth and fauces were full of mucous patches, but there was no history of infection. He was a young married man, and examination of every part of the body failed to reveal any primary sore.

Dr. DUNDAS GRANT said he had been struck by the number of cases of the kind which Dr. Jobson Horne had met with, but probably they were seen in the casualty department of a large hospital. It would take a long time to enter into the question raised by Mr. Nourse. He was convinced that sometimes the primary infection was in the tonsils, and that it was overlooked until the mucous patches appeared. Mr. Jonathan Hutchinson, in

his book on 'The Pedigree of Disease,' mentioned a number of cases of primary chancre on the lip.

Dr. JOBSON HORNE replied that most of the cases he had seen were in the Casualty Department of St. Bartholomew's Hospital.

Dr. ANDREW WYLIE showed a *Case of Neoplasm, probably Malignant, of the Œsophagus, causing Paralysis of both Vocal Cords.*

J.— B——, aged sixty-nine, music teacher, complained of great difficulty in swallowing, coming on gradually for the past nine months. The difficulty was with fluids as well as with solids. He stated that the food seemed to stick just as soon as it was swallowed. At times a difficulty in breathing occurred, but not often, and was more of a spasmodic character. He had only a very slight cough, and spat no blood; there was no fœtor. He was losing weight very rapidly.

No specific history. No history of malignant disease in the family. His wife was well, and children were all grown up and healthy. He had been treated with large doses of iodide of potassium with no result. Six months ago the left vocal cord alone was paralysed; last November the right became also affected; the lungs were normal; there was no sign of aneurysm; no swelling of the glands along the carotid canal could be felt.

A small bougie could be passed into the stomach with a good deal of spasm. An ordinary sized bougie could not be passed further than seven inches from the teeth, showing that the obstruction was at the upper third, or the cervical portion, of the œsophagus, about the level of the cricoid cartilage. That part of the œsophagus was not affected by malignant growths so often as the middle portion. Dr. Wylie presumed from the symptoms that it was a malignant growth of the cervical part of the œsophagus pressing on the recurrent laryngeal nerves and causing paralysis of both vocal cords.

Dr. S. LODGE said he had had a case in the Halifax Infirmary, on which there was a *post-mortem*. There was constriction and paralysis of both vocal cords, due to malignant growth of the œsophagus. Death ensued from perforation of the trachea, causing septic pneumonia. No glands could be felt in the neck, but the mediastinal glands were enlarged. The patient had no pain, but simply dysphagia, and was relieved with a Symonds' tube.

Mr. HAROLD BARWELL asked whether abductor paralysis was noticed in the case.

Dr. JOBSON HORNE asked what was the situation of the growth in the œsophagus. The case reminded him of one which he had



had under observation recently, in which there was a malignant growth in the first part of the œsophagus, and in which the patient suddenly developed double abductor paralysis. In fact, the first symptom which led to the discovery of the growth was pain on speaking, and it was followed by dyspnœa. The paralysis in that case was not neuropathic, but myopathic; the growth had eaten through into the muscles of the larynx from the posterior part.

Dr. WYLIE, in reply, said the neoplasm was in the upper third of the œsophagus; the bougie passed seven inches from the teeth. The chief symptom was difficulty in swallowing. He had felt very carefully for enlarged glands, but could not detect any.

Dr. WYATT WINGRAVE showed a *Case of Laryngeal Disease (Tuberculosis?) in a Man aged thirty-seven.*

Male, aged thirty-seven, a schoolmaster, complained of loss of voice of ten weeks' duration when seen fourteen days ago. There was marked aphonia, with some slight cough and scanty expectoration. Deglutition was occasionally painful, and there was no dyspnœa except on exertion. His family history was good; so was his personal, since it excluded tubercle and syphilis, sweating and wasting.

On examination the larynx showed well-marked ulceration of the left vocal cord, whose movement was limited. Just in front of its vocal process was a granulomatous flap. There was some increased vocal resonance with occasional râles and tubular breathing over the right upper and middle lobes. The septum contained no tubercle bacilli, only *Micrococcus tetragonus*. Notwithstanding the absence of tubercle bacilli the case was provisionally diagnosed as, and treated for tuberculosis.

Mr. BARWELL asked whether any antisyphilitic remedies had been given. After examination the larynx was red and injected, which would be rather against tubercle.

Dr. WINGRAVE, in reply, said his doubts were as between syphilis and tubercle. He could get no specific history whatever, and though the absence of tubercle bacilli was suggestive, it did not influence him very much. He intended, however, to give the patient the benefit of antisyphilitic treatment.

Dr. W. H. KELSON showed a *Case of Eruption on the Fauces in a Man.*

For the last nine months patient had suffered from raised whitish patches on his tonsils and soft and hard palate; they varied greatly, fresh ones appearing from time to time, accompanied by

severe pains. There was no history of syphilis, and antisyphilitic treatment had been unavailing.

The PRESIDENT said the case was an interesting one, and that it had the appearance of an ordinary mucous tubercle, except that the circumference was not congested and the eruption was not symmetrical.

Dr. J. E. McDUGALL thought there was a slight disposition to symmetry on the opposite side to that on which the apparent mucous tubercle was placed. The patient had already had anti-syphilitic treatment, but much depended upon the response of the patient to that treatment. In some cases mercury and iodide of potassium administered in the ordinary way did not benefit, and they had just heard of an instance where a like failure to respond to one method of administration was followed by ready submission to intra-muscular injection of sal alembroth. Such a method might be tried in the present case.

Mr. JAMES WIGG suggested that if the hypodermic injections of mercury produced no good result, one might try hypodermic injections of arsenic and iron.

Dr. KELSON said the patient's appearance had altered very much. When he first saw the case the swelling and ulceration looked very much like malignant disease; its aspect was more gross then than now.

Mr. HAROLD BARWELL showed a *Case of Syphilitic Laryngitis*.

The patient was a woman, aged fifty-seven, under the care of Mr. Sheild. She was married forty years ago, and shortly afterwards had an eruption on the legs and arms which had left scars.

In March, 1902, she was admitted to hospital with dysphagia, which was so severe that the physician made a tentative diagnosis of cancer of the œsophagus, and gastrostomy was suggested. Laryngoscopic examination showed a red, smooth, rounded swelling of the left arytenoid and ventricular band, there was no ulceration; an œsophageal bougie was passed without difficulty. She was given potassium iodide, increasing to 75 grains in the day, for ten weeks, during which time she improved but slightly, and a distinct syphilitic rash developed; she then had intra-muscular injections of sal alembroth with rapid improvement, and after five injections left the hospital able to swallow solid food; the laryngeal swelling was still very marked.

In November, 1903, she attended the throat department with much hoarseness but no dysphagia; the laryngoscopic appearance was almost identical with that seen eighteen months before; since

then she has been taking 30 grains of potassium iodide a day ; the voice was much improved, but the laryngeal swelling was still very marked.

The chief point of interest was the persistence of this swelling for two years, and Mr. Barwell suggested that it was a case of gumma which had undergone a hyperplastic change. Other interesting features were the extreme dysphagia present at one time, and the contrast between the slight action of potassium iodide and the rapid effect of mercurial injections.

Dr. WYLIE asked what dose of potassium iodide Mr. Barwell had tried.

Dr. LODGE said he was struck by the smallness of the dose, 75 grains a day. He would have been inclined to give 60 grains three times a day.

Dr. DUNDAS GRANT said the case evidently tallied with one he had at present under treatment, one of that puzzling group coming under the general heading of chronic œdema of the larynx. In his case it looked like a somewhat solid œdema, and the outlines corresponded to those of œdema. They suggested the appearance of cases of amyloid disease of the larynx which he had read of in a recent paper. Sir Felix Semon had also shown such a case at the London Laryngological Society, which got perfectly well in two years, and Dr. de Haviland Hall had shown another which ultimately proved to be tuberculosis. His own case answered slightly to iodide of potassium, which justified the diagnosis ; but it was only when the patient had been taken into hospital and continuous inunctions of mercury were applied that decided improvement took place. After about twenty inunctions the swelling began to go down rapidly. A charge had recently been brought against the intra-muscular injections of grey oil, in a paper abstracted in the medical press from a German source. A case was quoted in which a gumma formed in the gluteal region, exactly where the injections had been carried out, and when this was opened a quantity of metallic mercury was found. He believed the same had been observed with regard to calomel. The inunction of mercury was the method which had the least drawback and was the most successful. After that, iodide of potassium produced magnificent effects. This was most noticeable in females, who, for obvious reasons, were not so likely as men were to be subjected to mercurial treatment in the initial stage.

Mr. BARWELL replied that he gave only 75 grains in the day, but he proposed to enlarge the dose. He did not believe it looked like œdema ; it was firm, solid, and unilateral. With regard to

tumours arising at the point of injection, this patient had had sal alembroth, which, being very soluble, would not produce the same symptoms as the more insoluble preparations were likely to.

The PRESIDENT showed a *Case of Growth occupying the Anterior Commissure above the Vocal Cord.*

This was the case of a young lady, aged twenty, who had consulted him on January 27, 1904, and was sent by Dr. Benson, of Middlesborough. She had complained for about four months of loss of voice and difficulty of breathing. The laryngoscopic image showed a pinkish-white, smooth, globular growth, about the size of a large pea, in the anterior commissure, apparently attached just above the junction of the cords, slightly to the left of the middle line. He was fortunately able to remove it on the first attempt, with a Gibb's snare, with immediate and complete recovery of voice. The President desired to elicit the opinion of the fellows as to the probable nature of the growth. He believed it would turn out to be a fibroma.

Dr. WYATT WINGRAVE said the seat from which the President removed the growth was essentially a position for innocent growths, chiefly papillomata and fibromata, the latter being of the soft variety, which was not surprising, considering that the vocal cords in their early stage of development were continuous right across the anterior commissure as a band; and that band seemed to be divided in some way and often left certain tags, which might easily become myxœdematous. It was a very easy transition from a mere innocent tag of connective tissue covered with epithelium to a larger one in the form of a papilloma or pedunculated fibroma. The President was to be congratulated on having removed it so easily by means of the snare. He (Dr. Wingrave) had had two or three such cases which he could not touch with the snare, but had no difficulty in removing them with a curette passed over the epiglottis, and engaging it by pressing the curette steadily forward and withdrawing it in an upward direction. A microscopical section of the growth would be extremely interesting, in order to throw further light on its nature. Malignant growths in that region were extremely rare.

Dr. VINRACE thought the growth appeared to have caused very little inconvenience, having regard to its size and the time it had been there. Perhaps it might have been present longer than the patient thought, but caused no inconvenience.

Dr. JOBSON HORNE referred to a similar case he had recently, also in a woman. In the mirror the growth appeared to be spring-



ing from the anterior commissure, but when he removed the growth it was found to be pedunculated, and attached by a somewhat broad base to the left cord. The method he adopted for its removal was by means of a double curette, after Krause's principle, and he removed it flush with the edge of the cord. It proved to be an innocent growth of a fibromatous nature.

Dr. LODGE said that two years ago he had had two similar cases in one year, but had not met with one since. In one of those cases there was aphonia of nineteen years' duration, and in the other it had existed a long time also. The former patient had no dyspnoea except on forced exertion, and the papilloma was so large that one could not very well get a view of the whole of the vocal cords. The patient did not behave very well, but having got the snare near it he removed it without keeping his eye upon it. The growths in both cases were papillomata.

The PRESIDENT, in reply, said the patient had had a good deal of dyspnoea, and, in contrast to Dr. Jobson Horne's cases, the growth had a narrow pedicle. The case was evidently not of the nature described by Dr. Lodge.

Dr. JOBSON HORNE exhibited a *Microscopic Section of the Intra-nasal Growth removed from the Patient shown at the Last Meeting.*

The microscope had confirmed the diagnosis of papilloma.

Mr. MAYO COLLIER read a *Paper on Latent or Intermittent Nasal Obstruction.* The paper will be found reported *in extenso* on p. 122 of last month's issue.

The PRESIDENT thanked Mr. Collier in the name of the Society for his interesting paper; and, as the hour was late, he suggested that the discussion on it be adjourned until the next meeting. During the interval Fellows would have an opportunity of studying Mr. Collier's observations.

This was agreed to.

Dr. DUNDAS GRANT proposed that the Presidential Address, for the same reason, be postponed until the next meeting, and that it occupy the first place after the exhibition of cases.

This was also agreed to, and the meeting terminated.

PROCEEDINGS OF THE LARYNGOLOGICAL  
SOCIETY OF LONDON.

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*Eighty-sixth Ordinary Meeting, January 15, 1904.*

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P. McBRIDE, M.D., F.R.C.P.Ed., *President, in the Chair.*

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*(Continued from page 168.)*

MR. DE SANTI showed a *Man with Tertiary Syphilis of the Larynx causing Stenosis; Thyrotomy Four Years ago.*

This patient was brought before the Society by Mr. W. G. Spencer some four years ago as a case of tertiary syphilis of the larynx causing so much stenosis as to necessitate thyrotomy.

At the time there was some expression of opinion to the effect that thyrotomy and removal of the cicatricial tissue would be of no permanent benefit, and that the use of a tracheotomy tube would be the only safe line of treatment.

He was now brought before the meeting to show that although for the last four weeks he had begun to have a little difficulty in breathing, yet for close on four years since the thyrotomy and removal of the diseased tissue was performed he had been perfectly well, and had had not the slightest trouble with his breathing. He had been able to perform his work, and his condition, if a permanent tracheotomy tube had been used, would have been such as to prevent him from doing his work, to say nothing of the general distress its use would have entailed.

It was true he had within the last four weeks had a renewal, though only a slight one, of his breathing difficulties, but for over two and a half years he had failed to carry out the instructions given him, namely, to take a course of iodide of potassium for at least six weeks once a year.

He had now been taking 20-grain doses of iodide, and after only ten days' treatment had already begun to improve.

MR. W. G. SPENCER was greatly obliged to Mr. de Santi for bringing the case up for him. When he first showed the case to the Society some doubt was expressed whether such an operation was indicated, and whether one was not in danger thereby of spoiling the cords, and all to no purpose, as sooner or later tracheotomy would have to be done, followed by removal of one cord and the scarred tissue and consequent impairment of the voice. When he showed the man his condition was stationary, and had remained so since, barring

one or two attacks, which were relieved by iodide of potassium. The point to be noted now was (1) that the cartilages—both thyroid and cricoid—were *still* sound, and that was the indication for this operation; and (2) that the patient was not subject to relapses, provided that iodide of potassium was occasionally taken.

Dr. STCLAIR THOMSON showed a *Case of Complete Paralysis of Left Vocal Cord in a Woman aged thirty-six*.

The patient reported that her weak voice came on quite suddenly about two years ago. It would be seen that the left vocal cord was quite immobile in the cadaveric position. The right cord crossed the middle line in its effort to make complete apposition, but the voice was feeble and toneless, as the inner border of the paralysed cord was excavated and without tension. The case showed in a marked way how the ary-epiglottic fold flapped over the glottis in respiration, and was pushed backwards on phonation by the opposite active cord. The patient complained of nothing beyond voice fatigue after talking. There were no symptoms in the eyes, neck, thorax, or reflexes to explain the condition. No history of syphilis. Suggestions were invited as to the nature of the lesion.

Dr. DUNDAS GRANT thought the position was not a typical one for a nerve-lesion, and that the extreme abduction of the cord was more likely to have been produced by some sort of fixation. There was some thickening around the arytenoid cartilage.

Sir FELIX SEMON was not sure from Dr. Grant's remarks whether he had been really speaking of "extreme abduction" as being present. If so, all he could say was that he did not see it, and that the expression, in his opinion, did not at all fit the actual condition. He himself should certainly have spoken of the position of the paralysed cord as "cadaveric."

Mr. PERMEWAN thought the appearance of abduction was due to the ary-epiglottic fold "flopping" over the cord. One certainly did not see much of the vocal cord.

In reply, Dr. STCLAIR THOMSON said, with regard to the case of paralysis of the left vocal cord, he was anxious to know why his patient had such a poor voice and Mr. Robinson's case such a good voice, the two cases being very similar—the cords in both being fixed in the cadaveric position. The right cord in his case crossed freely in the middle line, but not sufficiently to close the glottis, whereas in Mr. Robinson's case the cord crossed the middle line so successfully that the woman's voice was hardly distinguishable from the normal. He would be glad to hear the explanation of the

difference in the voices of these two patients, whether or not it depended on the completeness of the paralysis.

Dr. STCLAIR THOMSON showed *Two Cases of "Bleeding Polypus of the Septum."*

In the first case a tumour the size of a cherry-stone was found almost sessile in the usual site in the centre of the cartilaginous septum. It was removed with the snare, and the base, which bled freely, was seared with the galvano-cautery. The patient was a hospital case, and was lost sight of. A section from the growth was exhibited, and was considered a fibro-angioma, although some observers might suggest some sarcomatous elements. The second case was from a female aged about twenty-five. In this case the tumour was the size of a small pea, had a most distinct narrow pedicle, about a quarter of an inch long, at the end of which the growth was easily moved about. It was removed with a snare, and, warned by previous experience, the base was at once freely cauterised with the galvano-cautery. The case was seen three months later, when there was not the slightest suspicion of recurrence, and there was only a small star-shaped white cicatrix to mark where the pedicle had been attached to the septum. A section showed the growth to be a decided fibro-angioma.

These were formerly regarded as rare growths up to the time Natier published his article on "*Les polypes saignants de la cloison*," but Dr. Thomson had now shown three cases before the Society. His first case was shown in January, 1896, and on glancing through the 'Proceedings' he noticed that Dr. Bond had shown one in November, 1896, Dr. Spicer one in December, 1897, Dr. Tilley one in March, 1900, and Dr. Brown Kelly one in February, 1903. Possibly other cases had escaped his notice. It was right to remark that Dr. Spicer's case had not been confirmed by a microscopic examination, and in Dr. Tilley's case it was reported that the section showed a sarcomatous character. Perhaps Dr. Tilley could tell the Society the after-history of his case? Dr. Thomson's first case was considered by some members to be sarcomatous, but there had been no recurrence in eight years.

Mr. H. TOD said he had also shown a case of the same nature to the Society, the section of which was now in Dr. Pegler's care. He saw the patient some three months afterwards and there was no sign of recurrence. The septum was quite smooth.

Dr. HERBERT TILLEY said that the case he had shown before the Society was quite well twelve months after he had removed the



polypus, and it had shown no signs of recurrence. He thought these "bleeding polypi of the septum" were not very uncommon. Dr. Thomson had brought notes of two cases to the meeting, and he (the speaker) had operated upon one within the last ten days, and was waiting to hear the pathologist's report on the same. The growth was red, vascular, pedunculated, and about the size of a horse-bean. It grew from the mucous membrane covering the cartilaginous septum near the junction of the latter with the ethmoid bone. He removed it with a cold wire snare and applied the galvano-cautery to the base from which the polypoid mass had grown.

The PRESIDENT thought that these cases were not so rare as the opening remarks of Dr. Thomson might lead some to think. His recollection of the first literature on the subject was either two or three papers, describing these tumours, published in *Archiv für Laryngologie*. He remembered quite well the first typical case he saw, and it was a rather curious one in some respects. The patient was a girl who came to him and he removed a typical bleeding polypus, which he sent to a pathologist, who described it as an adenoma. The girl came back again within a relatively short time with a growth exactly as large as she had had before. This he also removed, and the pathologist to whom it was sent reported it to be a sarcoma. The growth did not recur. He had seen several cases since.

Dr. W. H. KELSON had shown a case of a similar polypus. He mentioned it as showing that they do not always originate from the septum, as this one grew from the floor of the nose close to the anterior end of the inferior turbinate.

Dr. D. GRANT said that he had removed a polypus from a case of this kind some years ago; the pathologist reported that it was a form of sarcoma, but there was not the slightest sign of recurrence.

Dr. PEGLER said the angiomatous type of polypus that Dr. StClair Thomson had exhibited had been well represented by the remarkable series of sections of bleeding polypus shown by Dr. Brown Kelly last year, and which were in the cabinet on view in the next room.

Dr. MILLIGAN had a case five years ago in which he removed the polypus and cauterised it, and there was no tendency to recurrence at all.

In reply, Dr. STCLAIR THOMSON said: As regards the two septal polypus cases, he did not think he could accept Dr. Kelson's case in the group. They ought to include only those cases clinically described

as "bleeding polypi of the septum" until they had determined whether they were all of one pathological nature, or whether various pathological conditions grew there and produced "bleeding polypi." There was still great diversity of opinion as to the pathology of these cases. In the first case he had had to remove a recurrence, and the patient was well five years afterwards. The section was considered by some to be a sarcoma. The subject, in his opinion, was open to discussion. Though not common, these cases were not so very rare; in fact, he had quoted six cases to show that they were not uncommon. When Natier collected his cases some years ago they were then looked upon as very rare.

Mr. BUTLIN showed a *Case of Epithelioma of the Cricoid Plate and of the Esophagus removed by Operation.*

Mr. K—, aged forty-four, was brought to see me on August 14 of last year (1903), suffering from what had been diagnosed in Canada as inoperable malignant disease at the back of the larynx. There was a large, smooth, red tumour at the back of the larynx, almost confined to the left side, involving the whole of the ary-epiglottic fold, but not encroaching to any extent on the interior of the larynx. The left side of the neck was occupied by a very large mass of glands, chiefly on a level with the cricoid cartilage, and so intimately associated with the sterno-mastoid muscle that it was evident that they could only be removed by cutting away almost the whole of the muscle.

The first symptoms of disease had been noticed some ten months previously in a curious catch in speaking and in a sense of malaise. Then, there was expectoration of phlegm, which by-and-by became purulent. For four months there had been difficulty in swallowing; and when I saw him he could only swallow with pain, and his voice had just become husky. There was no spontaneous pain, but he had lost about 20 lbs. in weight.

Under ordinary circumstances I should have regarded the case as beyond the reach of operation, not so much on account of the situation of the primary disease and its long duration, which made it certain that it was much more extensive than it looked to be, but on account of the extent and condition of the glandular disease. But, seeing the age and immense strength of the patient, and having in mind the success of Professor Gluck's operations for what would have appeared to be hopeless conditions of malignant disease of the throat and neck, I placed the matter before the patient, and asked him whether he would care to undergo an operation of very considerable magnitude, which might

itself be fatal, and which I did not myself think would be successful. He decided in favour of operation.

On August 19 the operation was performed, with the help of Mr. Donald Armour, who had brought the patient to me on the 14th. An incision was made in the middle line from the hyoid bone to the third ring of the trachea, and from about the middle of the thyroid cartilage a transverse incision, which allowed two flaps to be turned aside. The muscles were separated from the left ala of the thyroid cartilage until the larynx could be twisted on its own axis to such an extent that the back presented on the left side. A free incision was made through the wall of the pharynx and œsophagus, through which the disease could be seen and felt. The smooth, red tumour was found to be the upper border of an ulcerated surface, which extended down the front and left side of the œsophagus to a point which I could just reach with the end of my finger. The whole circumference of the alimentary canal was not involved, so that there was little or no fear of a ring-formed stricture after removal; but several square inches of the wall of the lower pharynx and œsophagus were involved in the ulceration.

As the removal of the disease was evidently feasible, the trachea was opened and Hahn's tube was introduced. The operation wound was opened up, and the disease was quite easily cut out with a pair of scissors. It was not adherent to the posterior parts of the larynx, so that the excision of the larynx never came into question. The vessels were tied with catgut; an india-rubber tube was introduced through the wound by the side of the larynx for feeding, the rest of the wound was carefully packed with gauze, and a drainage-tube was inserted. The lower part of the incision was not brought together, and Hahn's tube was at once removed. The operation lasted two hours, but there was really very little loss of blood.

On August 26 the larynx was examined with the laryngoscope, and the left vocal cord was found to be quite paralysed; also there was considerable deep red swelling of the left ventricular band. The patient was in wonderfully good condition, and was still fed through the india-rubber tube.

On August 28 the glands were removed by the most extensive operation I have ever practised on the neck. Almost the whole of the contents of the anterior triangle, all the contents of the upper and middle parts of the posterior triangle, the whole of the sterno-mastoid muscle, the entire length of the internal jugular vein were removed. The contents of the subclavian triangle were

not involved, and were not interfered with. After the operation there appeared to be nothing left on that side of the neck, with the exception of the carotid arteries and the pneumogastric and sympathetic nerves. The involvement of the muscle was largely due to inflammation and suppuration of breaking-down malignant glands. The wound was freely drained.

The patient never exhibited the least distress from the severity of these two operations, but made an uninterrupted recovery.

In the course of three or four weeks the voice was good and strong, although the cord remained paralysed. The feeding-tube was not removed until the middle or end of September, when it had been found possible to pass a small bougie through the mouth down the œsophagus. This treatment by bougies was continued for two or three weeks, by which time the patient could take soft solid food and even soft meat quite easily.

At the beginning of November a sinus opened in front of the neck, and a gland appeared below the jaw on the right side of the neck. On November 13 the sinus was opened up, and was found to be full of recurrent malignant disease. The gland on the right side, which had developed into an epitheliomatous cyst, was dissected out with difficulty, on account of its adherence to the large vessels.

In December Mr. K— was sufficiently recovered to return to Canada, but suffering from recurrent disease.

This is the second case in which Mr. Butlin has operated for malignant disease on the cricoid plate. In the first case the patient was a lady between forty and fifty years of age. It appeared to be limited in extent. An incision was made along the anterior border of the sterno-mastoid muscle on the left side; as for œsophagotomy, one or two enlarged and diseased glands were removed. The wall of the lower pharynx and œsophagus was cut through, and the disease was examined. It was found to be too extensive and too diffused for removal, although perhaps it might have been successfully dealt with by excision of the larynx. But the glandular disease was also extensive and diffused. The wound was closed except at the lower part, where an india-rubber tube was inserted and passed down into the œsophagus for feeding. The patient was much relieved by this. All went well for a week, when, during one night, there occurred a sudden profuse hæmorrhage, apparently from the carotid artery, and in a moment she was dead.

Mr. Butlin has also operated on one case of epithelioma of the back wall and side of the lower pharynx, where the ulcer was just visible above the level of the back of the larynx. The ulcer was



judged to be of small extent, and, indeed, it was so. It was approached by a similar incision to that practised in the case of the lady. It was found to be only about an inch in diameter. But below it, and running down the œsophagus much farther than the finger could reach, were flat plaques of cancer in the wall of the gullet. The ulcer and posterior wall of the œsophagus for a long distance below were cut out, but the patient was not much relieved by the operation, and was discharged to his home in the country, wearing a tube through the wound in his neck, through which he was regularly and easily fed.

It must be pointed out that the œsophagotomy incision was not nearly so convenient as that which was employed in the case of Mr. K—. It did not offer nearly so great facilities for examination and removal. The incision in the case of Mr. K— was, on the other hand, most satisfactory, and would be adopted by the author in all subsequent attempts to remove disease at the back of the larynx. It is practically the incision of Professor Gluck.

The author's object in publishing these cases is to show that even the largest operations for malignant disease of the cricoid plate and upper œsophagus are very hopeless; and that the best hope for the future is not in huge operations, but in earlier diagnosis. The rapidity with which the disease spreads, and the early and extensive affection of the lymphatic glands, generally on both sides of the neck, render these cases peculiarly unsuitable for operation when the disease is advanced.

The PRESIDENT said the Society was indebted to Mr. Butlin for telling them about the case and specimen.

Sir FELIX SEMON did not like Mr. Butlin's final observation to pass without saying what he thought they all felt when they had these cases before them. He had had a similar case that very morning—a patient with malignant disease of the posterior plate of the cricoid, with some involvement of the cervical glands. He of course did not urge operation, as his own feeling had been throughout the development of this question that, even if the operation was successful, the after-life of the patient was more or less miserable. In addition, the operation was very dangerous, particularly when the cervical glands were already extensively affected, and there was a very great probability of recurrence, however radically the glands were removed. Still, if the patient or his friends said to one, "Can nothing be done?" he considered that one was not justified, with Gluck's cases at the Swansea Meeting of the British Medical Association in one's mind, in answering "No." One always ought to remember that the feelings

of the patient with regard to the after-existence after these operations might differ from those of his doctor. So he put the matter when pressed perfectly frankly before the patient or his relations, and told them such an operation was possible, and might be successful; but, on the other hand, it was a dangerous one, that life after its successful performance was often miserable, and that recurrence took place but too often. He then let them decide on their course.

Dr. WATSON WILLIAMS said he thought they would be sorry if Mr. Butlin's failure to relieve this patient discouraged him and others from attempting to relieve these more advanced cases when the opportunity presented itself in the future. Such cases might sometimes be attended with relief by operation, and those who were able to see the patients and specimens brought before the meeting of the British Medical Association at Swansea by Professor Gluck would agree that a bold procedure on the part of the surgeon had sometimes given relief, and that there was some hope for a certain proportion of even advanced cases.

Dr. F. C. SHRUBSALL, for Dr. PERCY KIDD, showed a *Case of Outgrowth from the Anterior End of the Left Vocal Cord*.

Alfred P—, aged thirty-one, police constable, has suffered from hoarseness for the last eighteen months; cough for eight months. No marked wasting. Lungs, signs of limited tuberculous infiltration of the right apex. Larynx, slight swelling of both ary-epiglottic folds; attached to the anterior third of the left vocal cord is a smooth, yellowish, conical outgrowth; the posterior part of the left cord not visible.

Dr. STCLAIR THOMSON said, with regard to the inquiry for treatment, that he feared any treatment would be of no use. Both ary-epiglottic folds showed a pseudo-œdematous condition; there was subglottic ulceration on the left side, and on the right the greater part of the ventricular band had already gone. Local treatment could only be sedative and antiseptic.

Mr. F. C. SHRUBSALL said the only question in his mind was whether part of this projection could be snipped off, and so relieve the man's cough and hoarseness, which were preventing him at present from following his occupation.

Dr. DUNDAS GRANT showed a *Case of Sessile Fibromata at the Anterior Extremity of the Left Vocal Cord, partially removed by means of Forceps and completely extirpated by the Galvano-cautery*.

The patient was a widow, aged fifty-one, who had suffered from

loss of voice of nearly three years' duration. The anterior commissure was occupied by pink sessile growths, originating on the edge of the left vocal cord. In July, 1903, these were in part removed by means of Grant's intra-laryngeal forceps and Lack's forceps with recurved tips; the voice was slightly improved, but it was found by the exhibitor impossible to remove the growth completely by means of any forceps. One and 2 per cent. solutions of salicylic acid were applied, then a solution of perchloride of iron, also chloride of zinc, but without result. In October the galvano-cautery was applied for a moment, with the result of making a slight diminution. At this time there was a nodular growth with a depression in the centre, the latter apparently due to the cantery. Each of the little remaining nodules were separately cauterised at intervals of about a fortnight, and at the end of December the voice was perfectly restored. As could be seen, the vocal cord, although somewhat congested, was quite normal in outline.

The patient was a stout person, and the cavity of the mouth was small in its vertical diameter, so that the introduction of instruments, even for the purpose of inspection, was more difficult than in the average case. The epiglottis was so pendulous that only the posterior half of the cords was visible. The use of Escat's epiglottis-lifter greatly facilitated inspection and the introduction of instruments. The point of the galvano-cautery instrument was sharpened by means of a file, so that an extremely minute portion of it became instantly heated and cooled. The application was made as lightly as possible and quite superficially. Dr. Grant trusted to the subsequent cicatricial contraction to bring about the diminution of the growth without being sufficient to cause an undesirable degree of scarring of the cord itself. He had used the galvano-cautery in two other cases for the same purpose, and he asked whether the method found favour at the hands of other members of the Society.

Dr. DUNDAS GRANT showed a *Case of Atrophy and Collapse of Alæ Nasi treated by means of the Subcutaneous Injection of Paraffin.*

The patient was a female teacher, aged twenty-nine, and the thinness of the alæ was extremely marked, the tip of the nose having an unsightly pinched appearance. The nares were reduced almost to linear slits, and the indrawing of the alæ on inspiration was most pronounced. An injection of paraffin was made by means of a needle introduced about the middle of the edge of each ala, the finger being kept inside the nares, so that any bulging of the tissues into the cavity could be detected. The paraffin was

driven in a forward direction, and kept as close under the skin as possible. Injections were made at the same time into the tissues at the tip of the nose and as far as possible underneath the lining of the most anterior portion of the vestibule, with a view of propping out the alæ after the manner of the small roll of skin recommended for this purpose by the late Mr. Walsham. This portion of the injection might perhaps with advantage have been pushed to a still further degree. The pinched appearance of the tip of the nose was quite removed, and the alæ were rendered much firmer. The orifices of the nares were enlarged, though not to the average size, but the in-suction during ordinary inspiration was quite overcome, and was hardly produced even during powerful inspiratory effort.

The PRESIDENT asked if much paraffin had been injected in this case.

Sir FELIX SEMON wished to ask Dr. Grant a practical question: Was it within the operator's power, with regard to these injections of paraffin, to precisely say where the proper limit had been reached? The reason of his question was that it seemed so obvious that the injection of but a little too much paraffin might actually cause encroachment on the passage instead of obtaining the desired purpose. This question seemed to him the more important, as, according to all reports, it was so difficult, if not impossible, to remove paraffin injected into living tissues.

Mr. BUTLIN said that he had not yet been rash enough to inject paraffin; so far his experience in this subject consisted in the taking out of paraffin which had been injected, and it was a most troublesome operation. A little more experience was required in these cases before this operation could be regarded as a useful one.

Dr. HERBERT TILLEY said that his experience coincided with Mr. Butlin's in one of the respects which he had mentioned. Last summer he (the speaker) was asked to operate upon a frontal sinus which had been already operated upon by a surgeon,\* who had apparently injected paraffin into the sinus before it had completely healed from his first operation. When the sinus was operated on by Dr. Tilley he found it a small one, and performed a modified Kuhnt's operation. Under ordinary circumstances he should have expected the wound to heal in three to five weeks, but in this case it took ten weeks, and the slow progress seemed to be due to the fact that the tissues were impregnated with paraffin. He had used the method of paraffin injection for remedying a depressed scar in the case of a radical frontal sinus operation in a female patient, and the result twelve months after the operation was excellent.



Dr. MILLIGAN said that when a surgeon undertook these paraffin-injection operations he incurred very grave responsibility, as there was no justification for presuming that the result would be good. After having done several injections, he had brought a communication on the subject before the Manchester Medical Society. One member who took part in the discussion said that he had once injected paraffin to make up a woman's breast after it had been amputated, and he found it in the groin a few months afterwards. The first case he did was in a little girl with saddle-back nose. He obtained a beautiful result at the time, and a few months after the operation the result was still good; but only last week he heard that the paraffin had moved its position and was now lying outside the ala nasi. He called the attention of the Society to the serious result recorded by Dr. Hurd (America), where paraffin had been injected into the nose and was now lying in the central artery of the retina, causing permanent blindness. He considered the injection of paraffin a very delicate operation, the seriousness of which was not even yet fully understood by the profession.

Dr. BENNETT said that although the criticism had generally been directed against the use of paraffin injections, the results in this particular case had not been unsatisfactory. He should be very pleased if he could see this patient again, to see if the good result was permanent. All these cases ought to be very closely watched for a long time after the operation.

Dr. DUNDAS GRANT, in reply to the President, said it was very difficult to say how much paraffin he injected. He thought about 2 c.c. He injected into the middle of each ala nasi and then just inside the anterior part of each vestibule, to try and prop out the alæ. The space was not big, and if he had used more paraffin it would have been encroached upon. The paraffin solidified the alæ so that they stuck where they were instead of being sucked in at each inspiration.

In reply to Sir Felix Semon, he said that he had erred on the side of being a little over-cautious, so as not to make too great a thickening to bulge into the air-spaces. He kept very close under the skin and on the outer surface, and kept his finger inside the nostril. His personal experience could not go for much, as this was his only case. Several cases had been published in the *Münchener medizinische Wochenschrift*; in one case a sort of cushion was produced on the inner surface of the alæ nasi, which defeated the object in view. The operator then resected the excess paraffin, and got a good result. He was very afraid of producing that

“bulging” into the alæ nasi, so that he injected perhaps a little less than he might have done.

Dr. DUNDAS GRANT showed *Photographs of a Case of Flat and Sunken Nose treated by Paraffin Injections.*

The depression on the bridge of the nose was removed to a sufficient extent by injections in that part in the way which is now well known, but in order to diminish the flattening a considerable amount of paraffin was injected into the soft tissues forming the columella. In this way the tip of the nose was projected forwards, and the extreme flattening and width of the organ considerably diminished. The patient's personal appearance was very greatly improved. The exhibitor did not know whether the injection into the columella had been practised by others, but he considered it a valuable process.

Mr. HUNTER F. TOD showed a *Case of Soft Fibroma of the Left Vocal Cord in a Woman aged thirty-one.*

There had been hoarseness for seven years, and occasionally attacks of spasmodic dyspnoea during the night. The growth was freely movable, and was sucked up and down during forced respiration.

Mr. HUNTER F. TOD showed a *Case of Sarcoma of Post-nasal Space, probably involving the Ethmoidal Region, with Enlargement of Cervical Glands on the Right Side, in a Man aged fifty-one.*

Six months ago the patient noticed slight enlargement of the glands on the right side of the neck, which was thought to be due to carious teeth. Mr. Tod first saw the case in December last, when the mass of gland was about as large as an egg. Examination showed a small, hard, irregular growth in the post-nasal space on right side, abutting on the Eustachian tube and roof of the naso-pharynx and upper part of the choana. The growth bled freely on digital examination. On transillumination there was a marked opacity of the right side of the face just below the orbit, and there was no pupillary light reflex.

The patient suffered greatly from headaches, which were unrelieved by ordinary drugs.

Mr. Todd was anxious to know if an operation was justifiable. He had already told the patient that he thought operation impossible.

Dr. LOGAN TURNER said that he had read the report of a case from America in which sarcoma of the naso-pharynx had been

successfully removed. He did not get a good view of the naso-pharynx.

Mr. BUTLIN said that to undertake an operation from a curative point of view was absolutely out of the question. There was a mass of glands fixed to the spine. It might be possible to cut out the disease in the naso-pharynx, but it would not be worth doing.

Dr. HERBERT TILLEY said he had made a digital examination of the naso-pharynx and found the growth fixed to the vertebral column and invading the Eustachian tube and posterior choana on the right side. With an experience of two similar cases in his mind, he thought operative interference was out of the question.

Dr. KELSON said in Mr. Todd's case anterior rhinoscopic examination did not show any definite intra-nasal infiltration, nor was there any facial deformity. He wondered if Mr. Tod would entertain the idea of trying to remove the primary growth in this case.

In reply, Mr. H. Tod said he agreed entirely with Mr. Butlin. He brought the patient here as a "last chance." He thought the growth was probably even more extensive than it appeared to be.

Mr. H. BETHAM ROBINSON showed a *Case of Obstruction in Lower Pharynx from the Formation of a Diaphragm Adhesion between the Posterior Part of the Tongue and the Posterior Pharyngeal Wall.*

Female, aged thirty-two, who soon after marriage, six years ago, developed syphilis, now shows extensive pharyngeal synechiæ, the result of widespread ulceration. For the last four months she has had difficulty in swallowing, as well as very marked scarring on the posterior pharyngeal wall. The soft palate is so adherent as to completely shut off the naso-pharyngeal cavity, except for a small opening on the right side.

What is of greater interest is an almost horizontally placed membrane, due to cicatrisation, which passes from the back of the tongue at the level of the upper part of the vallecular fossæ to the posterior pharyngeal wall, leaving an opening in the centre whose area hardly exceeds that of a sixpence. This diaphragm-like structure has a free inner margin; this latter is in relation with the edge of the epiglottis about the junction of its upper and middle thirds, and then at the back hides from view the posterior part of the larynx. Both the opening into the pharynx posteriorly and the pyriform sinuses are completely hidden. The result of this curious formation is that any fair sized bolus of food must inevitably lodge on this shelf.

Dr. P. WATSON WILLIAMS showed a *Patient, a Lady aged forty-*

two, with an *Intra-laryngeal New Growth*, apparently arising from a broad base attached to the base of the epiglottis at its junction with the right ventricular band of the aryteno-epiglottidean fold. It was smooth and semiglobular, covered with pink mucous membrane, which was very vascular.

The only symptoms were alteration of the voice and cough on exertion. There was no secondary glandular enlargement, and he considered it was either a cyst or a fibroma, probably the former, as in this region fibromata were rare. But six years ago he had removed a fibroma from much the same region, and it was therefore very possible that this would prove to be a similar new growth. There was no evidence pointing to malignancy. Dr. Watson Williams exhibited his forceps with the adjustable ends working in the position which he proposed to use in the removal of the neoplasm.

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*Eighty-seventh Ordinary Meeting, February 5, 1904.*

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CHARTERS J. SYMONDS, Esq., F.R.C.S., M.S., *Vice-President, in the Chair.*

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The following cases and apparatus were shown :

Dr. EUGENE YONGE showed *Professor Meyer's Apparatus for Demonstrating the Laryngeal Image and Intra-Laryngeal Manipulations.*

This apparatus was constructed from a model invented by Professor Meyer, of Berlin. With the exception of a modification in the lamp, by which its illuminating power was increased, the original idea had been closely adhered to. Dr. Yonge said that any one who had had the pleasure of working with Professor Meyer would probably have noticed that he possessed a distinct genius for demonstrating the phenomena observed in connection with his *spécialité*, and the apparatus exhibited was by no means the only successful effort in this direction which he had accomplished. It would serve no useful purpose to minutely describe the appliance; it was better, for its proper comprehension, to see it in action. Stated in general terms, however, the essential part of the contrivance was a device by which the laryngeal image was illuminated in such a way that, by an adjustment of reflectors, images of the larynx, practically identical in every respect, were severally capable of being observed by the examiner



and four other persons. Moreover, the four observers could be disposed at convenient distances from the examiner, from the patient, and from each other. It appeared to Dr. Yonge, indeed, to be quite feasible to modify the apparatus in such a manner that six or eight observers (in addition to the examiner) could be enabled to obtain simultaneously a good view of the larynx; he was at present making some experiments on this point. A special advantage of the apparatus was that any intra-laryngeal manipulations could be as clearly seen by the observers as by the individual who was carrying out the manipulations.

Dr. S. Moritz, of Manchester, had suggested a modification of the machine which would greatly reduce its cost and at the same time render it more portable; but this modification was not yet quite ready for exhibition. The present apparatus was made by Mr. Edwards, 7, Dalton Street, Chorlton Road, Manchester.

Mr. SYMONDS thanked Dr. Yonge, on behalf of the Society, for showing them the apparatus, which had been greatly appreciated.

Mr. F. J. STEWARD asked where the apparatus could be obtained.

Dr. E. S. YONGE, in reply, said the apparatus could be obtained from Hirschmann's, in Berlin. If any member thought of using it, he would advise him to adopt the modification he himself used, *i. e.* the lamp should not be put in the slot that was made for it; it was better to pull it up until it reached a point above the pin in a bayonet joint. The light, as used by Meyer, was pushed down to the base and then fixed, but this position did not give so good a light as when the lamp was pulled up until it got beyond the pin. The cost was £6. He was making a modification which could be fixed on to an ordinary laryngoscopical bracket, which would be much cheaper and handier, as it would be portable, and could be easily taken from one room to another for hospital work, etc.

Dr. EUGENE YONGE showed *Microscopic Sections of Bone and Soft Tissues from Case of Early Polypus*.

The specimens were obtained, *post mortem*, from a man, aged fifty-two, who had died from cirrhosis of the liver. When the nasal cavities were opened (for the purpose of obtaining sections of normal nasal mucous membrane) it was observed that there was a polypus attached to the anterior end of each middle turbinal, and these growths were accordingly removed, together with a piece of underlying bone. A microscopic examination showed that the soft structures exhibited the characteristics of a nasal polypus, but that in the subjacent structures there was neither periostitis nor bone disease, rarefying or condensing.

Mr. SYMONDS said it was open to question whether the bone was thickened. He would be glad to hear any criticisms.

Dr. H. L. LACK agreed with the President that the bone appeared to be thickened and sclerosed. There was therefore nothing in this case contradictory to the opinion he had expressed that nasal polypus was simply a localised œdema of the nasal mucous membrane, and was due to osteitis in the underlying bone. He had always added that in many cases of single polypi of long standing which did not recur on removal the active bone disease had passed off and had merely resulted in bony thickening, the polypus in this case being merely a relic of former disease. But he had also another criticism to make. This specimen had been obtained from the *post-mortem* room, and there seemed to be something very fallacious about the pathology of the nose as determined from *post-mortem* specimens. They all knew that the *post-mortem* evidence as to the frequency of suppuration in the accessory cavities was entirely contrary to clinical evidence, and was, in fact, incredible. In a similar way Zuckerkandl stated that he found nasal polypus present in no less than one case in every nine *post-mortem* examinations. Now, clinically, he (the speaker) would say that nasal polypus was not present in more than one in 500 or possibly one in 1000 patients. It was not surprising, therefore, that Zuckerkandl should say that in the few specimens in which he had examined the bone he had found no evidence of osteitis, although he had occasionally seen definite sclerosis. (Edema of the nasal mucous membrane was often both macroscopically and microscopically indistinguishable from polypus of the nose, and might arise from various different conditions. It might be due to malignant disease of the nose, to acute inflammation, to syphilis, etc. As was well known, packing the antrum tightly with strips of gauze would, in twenty-four hours, produce a polypoid condition of the lower lip of the osteum maxillare. In definite clinical cases of nasal polypus he was sure osteitis would be found. It was impossible to regard these *post-mortem* cases of Dr. Yonge's and of Zuckerkandl in the absence of all clinical history as cases of definite nasal polypus.

Dr. E. S. YONGE said that in the opinion of a pathologist to whom the sections were submitted the bone was not diseased. Dr. Yonge also thought the bone was normal. In reply to Dr. Lack, as regarded the thickening of the bone, he said the bone was not thickened in the sense which he had been taught to associate with sclerosing osteitis, because he had always believed that the lacunæ were separated by wide gaps, which were not

apparent in this case. Also, he had believed that osteitis—whether rarefying or sclerosing—was always associated with periostitis, but this was absent here. The periosteum might be thicker in some places than in others, but that in his experience was not sufficient to constitute periostitis. With regard to *post-mortem* evidence, it was surprising that Zuckerkandl found that in one out of every nine cases polypus was present, whereas clinically, in one's hospital and private practice, there was not such a large percentage. Was it to be inferred from this that these were *post-mortem* changes which Zuckerkandl had found and which he himself had found in this case which looked like polypus, because, if so, how was it that a definite change had taken place (presumably after death), showing signs of inflammation? In the polypus, which was present under the microscope, in this case there were definite signs of inflammation: there were numerous round-cells scattered about the vessels and glands, the vessels were thickened, and there were other signs of inflammatory action. Thus, whatever the curious contrasting evidence to be obtained by comparing the clinical and *post-mortem* results, he could not think that they were *post-mortem* changes which Zuckerkandl had found, and which were present in this case.

Mr. BURT showed a *Case of Questionable Mild Glanders in a Man aged forty-nine.*

Patient had a kick on the nose from a horse twenty years ago, since when he had had frequent outbreaks at the seat of injury, with discharge of a brownish matter. Syphilis twenty years ago. In January, 1903, he was bitten by an apparently healthy horse across the wrist and right hand; this was followed by abscesses on the hand and forearm, and later on other parts of the body. He also had drowsiness and general lassitude.

His nose became affected in May, being obstructed; there was also an ichorous discharge from both nostrils. On examination there was general swelling of the interior of the nose, œdema of the posterior pharyngeal wall, soft palate, and tonsils, and in the naso-pharynx a large dirty yellowish slough. Later, the patient had an attack of erysipelas, and also an acute attack of otorrhœa. Swabs of the discharge from both the ear and nose were sent to the Clinical Laboratory in Queen Anne Street, but the report was negative as to the presence of the *Bacillus mallei*.

Nevertheless Mr. Burt considered the case to be probably one of mild glanders on account of the nature of the abscesses, their distribution, and the formation of vesicles around the scars; the

nature of the discharges from the nose and the changes which they underwent; and the nature of the ulceration. The patient was now well, and examination of his nose and naso-pharynx showed nothing.

Mr. SYMONDS said that Mr. Burt's own suggestion was one of chronic glanders; and inquired whether there was anything to be seen in the larynx which he had not had an opportunity of examining.

Dr. LAMBERT LACK showed a *Case of Epithelioma of Tonsil; Operation; Recovery.*

The patient was a man, aged sixty-three, and first came under Dr. Lack's care in March, 1903. The patient was thin, and looked much older than his years. He had great pain on swallowing, and could only take liquids. He had lived many years in India, and suffered from malaria and chronic alcoholism. There was extensive superficial ulceration in the region of the left tonsil extending on to the palate. The affection was looked upon as tertiary syphilis until, medicinal treatment failing, a piece was removed for microscopic examination. The sections showed that the ulcer was epitheliomatous. The growth involved the pillars of the fauces on the left side, and extended on to the soft palate as far as the median line. It was soft to the touch, and had no definite margin. In spite of the patient's general condition, it was decided to remove the growth, chiefly because of the severity of the local symptoms. The operation was performed in four stages. This method Dr. Lack had now employed in several cases and found very advantageous. (1) The anterior triangle of the neck was opened up, the enlarged glands, fat, and fascia removed, and temporary ligatures placed around all the large vessels; (2) laryngotomy was performed; (3) the cheek was slit back from the angle of the mouth to the ascending ramus of the jaw, and (4) the growth, including a good margin of healthy tissue, was snipped out through the mouth with scissors. The operation presented no difficulty, and, immediately it was completed, the temporary ligatures were removed from the vessels and the wound in the neck closed; the laryngotomy tube was also removed. The patient made an uneventful recovery, and eight months later still remained well. It was too early to speak of a cure, but increased experience led Dr. Lack to believe that the method of operation adopted was the one best suited for those cases.

Mr. SYMONDS said this was an admirable surgical success.



Dr. LAMBERT LACK showed a *Case of Endothelioma of the Larynx and Microscopic Specimens.*

The patient, a woman aged about fifty, came under Dr. Lack's care suffering from tertiary syphilis of the tongue, soft palate, and larynx. There was extensive thickening, induration, and scarring of these parts. The epiglottis was partially destroyed, the stump being thickened and œdematous. Both arytenoids were swollen, and from the anterior surface of the left a large œdematous mass bulged in the cavity of the larynx. Antisyphilitic treatment effected some improvement, but the dyspnœa increasing it was decided to attempt removal of the œdematous mass attached to the left arytenoid. This failed, and laryngotomy had to be hurriedly performed. A week later a tracheotomy was performed, and it was decided to do thyrotomy to remove the growth, and thus to do away with the necessity of wearing the tracheal tube permanently. On getting down on to the thyroid cartilage a mass of new growth was seen outside it. This, apparently, was malignant; a piece was therefore removed for microscopical examination and the wound closed. The sections exhibited the typical structure of an endothelioma. The wound healed readily and remained healed. The patient on the whole had improved during the last three months. The case, so far as Dr. Lack was aware, was a unique one, and the question arose whether anything further should be attempted in the way of treatment. It seemed unwise to remove the larynx, as it was impossible to tell how far the disease extended, and it was already outside the laryngeal cartilages.

Dr. LACK said he had not recommended operative treatment, as he could not tell the limits of the new growth. Laryngoscopically it was indistinguishable from the syphilitic changes. The only piece that he was certain was endothelioma was the part of the growth which extended outside the larynx, the part from which the sections had been cut. The patient also seemed to be improving; and the growth being definitely outside the larynx, it was doubtful if it could be thoroughly removed.

Dr. LAMBERT LACK showed *Microscopic Sections of Endothelioma of the Maxillary Antrum.*

This patient, a man aged fifty, came under treatment for tertiary syphilis of the hard palate and nose. There was a perforation in the posterior part of the hard palate communicating with the antrum. A sequestrum was removed from the nose, and the patient was put upon potassium iodide and rapidly improved. Three

months later he came again, complaining of pain and swelling in the canine fossa on the right side. The perforation in the palate remained patent, with healed edges. There was a pale irregular mass projecting into the right nasal fossa under the inferior turbinate, which bled readily on pressure. Anticipating that necrosis of the upper jaw and probably a sequestrum was present in the antrum, this cavity was freely opened through the canine fossa. It was found that the wall of the antrum in this situation had disappeared, and the antral cavity was packed with soft gelatinous growth. A piece was removed for microscopical examination, and showed the typical structure of an endothelioma. The upper jaw was then removed by Mr. Barnard. The growths in both of the above cases were microscopically identical, consisting of cubical cells in places tightly packed together; in others the centre of the columns of cells had degenerated, leaving an alveolar space surrounded by two or, in many cases, a single layer of cubical cells; the centre of this space was filled with mucin. Both sections much resembled normal specimens of the thyroid gland.

Dr. LAMBERT LACK showed a *Specimen of Exostosis from the Ethmoidal Region of the Nose, with Nasal Polypus*.

This patient, a girl aged about twenty-two, had been in Moorfields under Mr. Lang, who kindly referred her to Dr. Lack. The early symptom was proptosis, which gradually increased until a large hard swelling made its appearance on the inner wall of the orbit and pushed the eye outwards. The sight was considerably impaired. On examination a large, hard, irregular tumour was felt on the inner wall of the orbit. The right nasal fossa was obstructed by ordinary nasal polypi, amidst which some pus was seen. A diagnosis was made of empyema of one or more of the ethmoidal cells, with obstruction of the ostium and dilatation of the sinus. An incision was made along the inner wall of the orbit from the supra-orbital notch below the line of the eyebrow, curving downwards and inwards and finally outwards, to end just below the inner canthus. The periosteum was detached from the inner wall of the orbit, and a bony growth exposed. This turning out to be solid bone of ivory consistence, the lachrymal plate of the ethmoid was cut away, and the growth separated and drawn out through the wound. It consisted of a solid, irregular mass of bone of ivory hardness, nearly two inches long and an inch in thickness; to the nasal surface two or three typical nasal polypi were attached.

Dr. FURNISS POTTER showed a *Case of Recurring Papillomata of Larynx*.

The patient, a man aged twenty-eight, came under observation about four years ago. When first seen the interior of the larynx was filled with a dense shaggy mass of papillomata, the vocal cords being completely hidden. The voice was feeble and husky. The bulk of the growth was removed with forceps in three or four sittings, during the process of which the patient became aphonic; but on the removal of the growths being completed the voice returned. Although the larynx had been thoroughly cleared of papillomata, there had persisted up to the present time an obstinate tendency to return, which had necessitated frequent use of the forceps—about every four or five weeks. If this was not done, loss of vocal power soon became evident; in fact, the only way in which a fairly useful voice could be maintained was by frequent pruning of the excrescences on the cords. Applications of salicylic and chromic acids in various strengths had been applied, but with no appreciable benefit. The exhibitor was not sure that such frequent instrumentation was desirable, but he was sure that if it were not done recurrence would certainly take place, and the patient would be in danger of relapsing into the extreme condition in which he was when first seen four years ago.

The case was brought before the Society in the hope that some suggestions for further treatment might be obtained which would prove to be more efficacious than that which had been hitherto adopted.

Mr. SYMONDS said that information was required on two points: (1) as to a better mode of treatment; (2) whether any evil tendency would be determined by frequent removals.

Dr. GRANT reminded Dr. Potter that Dr. Bronner had derived advantage from the application of formalin in these cases. In some cases he had been convinced himself that the recurrence was prevented by the application of a solution of salicylic in increasing strength. He asked the strength of the solution of chromic acid that was applied.

Dr. POWELL said that in his experience nothing had any effect as regards the prevention of the recurrence of papillomata of the larynx. The only thing was to remove them. This could only be effected by repeated operations. It was a curious fact that sometimes they spontaneously ceased to grow.

Dr. POTTER said, in reply to Dr. Dundas Grant, that on one occasion he applied a saturated solution, which undoubtedly had a

very good effect, but it gave rise to a considerable reaction, and the patient suffered a good deal of pain. Since that he had used 20 to 30 per cent. solutions.

Mr. ATWOOD THORNE showed a *Man, aged Thirty-two, with Complete Immobility of the Left Vocal Cord.*

The man came to the London Throat Hospital complaining of hoarseness, and on examining the larynx the left cord was seen to be rigid almost in the middle line; there was slight swelling over the left arytenoid. On looking for a cause "tracheal tugging" was noticed, but no other sign of aneurysm, and there was nothing pointing definitely to tubercle. Dr. Caley kindly saw the case, and pointed out that there was an area of dulness at the right apex behind, but found no more signs of aneurysm. Arrangements were made to examine the chest by X rays and to examine the sputum, but the man did not keep his appointment.

Dr. J. DONELAN had shown to the Society a drawing from a man who died from aortic aneurysm, in whom there were no thoracic signs during life. The history in some respects resembled that of this case in the gradual onset and in the inequality of the radial pulses. He took this man into the dark room not for radiography, which might be tried, but for auscultation, and it seemed to him there was a slight systolic *bruit* at the left border of the sternum. He thought the case was one of recurrent paralysis due to aortic aneurysm. The fixation of the arytenoid was probably due to perichondritis.

Dr. HERBERT TILLEY thought that all cases of recurrent laryngeal paralysis in which the ordinary methods for detecting abnormal physical signs in the lungs had failed should be submitted to the X rays before concluding that intra-thoracic lesions were absent. The value of such a procedure had recently been forcibly impressed upon him. The patient was a middle-aged man suffering from chronic hoarseness and cough. The left vocal cord was paralysed (abductors only). A careful examination of the chest by an expert failed to detect any physical signs which could throw any definite light upon the laryngeal paralysis, but by means of the X rays a small aneurysm in the arch of the aorta was easily detected, and had since become evident by the more usual physical signs, which had at first been insufficient to detect it.

Dr. POWELL said the man showed scars on the neck, apparently the result of operation for broken-down tubercular glands. Possibly there were some tubercular glands in the mediastinum. He thought it was a case of total recurrent paralysis.



Mr. H. W. CARSON said not only was there paralysis of the left vocal cord, but there was also paralysis of the left side of the soft palate and tongue, which was pushed to the left side. This made the case much more complicated than members seemed to think. He did not think the case purely one of recurrent paralysis, as the facial and hypoglossal were affected. The patient also had glands in the neck and scars; this combination was not impossible where the paralysis was of central origin. He thought the case might be improved by iodide.

Mr. DE SANTI regarded the scars as being of specific origin and not tubercular. It would be a good thing to radiograph the man. He had shown a woman exactly similar, as regards the condition of the larynx, to the Society—a case in which no diagnosis was made as to the cause. Two physicians failed to find any signs of aneurysm, but on employing the X rays well-marked signs were found. Eventually the patient was admitted to hospital, and died of aneurysm. He thought this a case of aneurysm, and that the ulcers were specific; these two conditions were common enough as the result of syphilis.

Mr. A. THORNE said that, feeling a doubt as to the examination of the chest, he sent the man to Dr. Caley, who found a doubtful dull patch on the right side, but he could find no definite sign of aneurysm. He, however, arranged to take a skiagram, but the man failed to turn up at the hospital. He had, however, made another appointment for the next day (February 6), when he hoped the matter would be settled. He would be pleased to give the Society the benefit of any further observations on the case.

Mr. ATWOOD THORNE showed a *Man, aged Thirty-five, with Paroxysmal Pain starting from the Larynx.*

This patient came to the London Throat Hospital complaining that he had swallowed a bone a week ago, and that since then he had had severe attacks of pain starting from the throat (he referred to the region of the larynx), which doubled him up and sometimes stopped him working; he was a builder's foreman. On examining the larynx nothing abnormal was discovered, but while doing so a paroxysm of pain was caused, apparently by touching a spot just behind the right tonsil. The man was healthy looking, and with no signs of neurasthenia. He was given a mixture of potassium bromide and was slightly better, but had had a few attacks.

Mr. SYMONDS said he had given the man a spasm unintentionally when he touched the tonsil on that side. It occurred to him that the pain might originate in the tonsils and be reflected downwards

He would like to hear any suggestion on that point, or as regards the treatment. The patient told him he was much better than he had been.

Dr. POWELL thought this was probably a case of neuritis, the result of a granular patch on the lateral wall of the pharynx acting as an irritant and setting up neuritis. On touching a certain spot behind the posterior pillar, the spasm seemed to come into action. He could see nothing else to account for the pain.

Mr. ATWOOD THORNE showed a *Case of Tumour of the Larynx in a Woman aged Forty-five.*

This patient came to the London Throat Hospital only four days before, complaining of hoarseness. On examining the larynx the right cord was almost hidden by a mass springing apparently from the false cord on that side. The mass was of a dirty grey colour, and could be partially lifted from the cord by a probe; there was a similar but smaller mass in the anterior commissure preventing the cords meeting, but except for this the cords moved well. The hoarseness had been getting worse for seven months. Two years ago she had had right-sided paralysis and aphasia. History of syphilis doubtful; no definite evidence of tubercle.

Dr. STCLAIR THOMSON said this was a very interesting growth. The age of the patient made it possible that it might be malignant, and this was also suggested by the white surface. But, on the other hand, a malignant tumour could not have attained such a size without more infiltration. He thought the whiteness of the surface was really due to ulceration. There was another separate little growth lower down between the cords. He concluded that the growth was a tuberculoma, in spite of the negative evidence of pulmonary tuberculosis. If it was necessary to at once establish the diagnosis, this could be done by removing a portion and placing it under the microscope. The evolution of the case would doubtless show that this was a tuberculoma.

Dr. H. SMURTHWAITE said that to his mind this was a case of tuberculosis. There was a growth in the centre of the right cord, and another small one directly above that; there was some ulceration of the surface of the growth. On a similar growth on the right side there was ulceration taking place, probably one of the forms of tubercular papilloma. The mucous membrane was also affected. He remembered seeing a rather similar case in Vienna two years ago: it was taken for an ordinary papilloma at first, but after a time the surface became inflamed by rubbing against the opposite

cord, and further growths sprang up; a piece of one was removed and found to be tubercular. The arytenoid space became infected, and later on the epiglottis, which was forced up. The patient died of phthisis three months later.

Dr. FURNESS POTTER said he thought it would be well to examine the growth with a probe, in order to ascertain if it were simply lying on the cord, and could be lifted off it, or whether it had infiltrated the cord. He was of opinion that there certainly was an ulcer near the anterior commissure on the right side. He thought the case would probably prove to be tuberculous.

Mr. SYMONDS said he understood Mr. Thorne proposed removing a piece for microscopical examination with the curette. This would be a desirable step, and it would not be a difficult case to operate on if necessary.

Mr. A. THORNE thought there was no doubt that there was an ulceration of the mass in the anterior commissure. He examined the larger mass with a probe, and was able to lift it up from the cord. He was surprised that every one "plumped" for tubercle; he thought that syphiloma and simple growth were not yet excluded.

Mr. H. W. CARSON showed a *Case of Laryngeal Ulceration in a Phthisical Subject.*

The patient was a man, aged fifty-nine, who had complained of hoarseness for sixteen months. For the last nine months he had had cough and expectoration. Six weeks ago pain occurred on swallowing, and there was now constant pain radiating to the right ear. He had been losing weight steadily; and was emaciated. Voice reduced to a hoarse whisper. An ulcer occupied the centre of the false vocal cord and the upper surface of the true vocal cord on the right side. There was no limitation of movement, and the area of disease was strictly localised. An enlarged gland was present behind the right ala of the thyroid cartilage. The apices of the lungs were tuberculous, and tubercle bacilli were present in the sputum. The diagnosis rested between tubercular ulceration and malignant disease.

Mr. CARSON said tubercular ulcer of the larynx was so natural to think of that he was a little inclined to disbelieve it was tubercular for that reason, and although the patient was suffering from a degree of pain inconsistent with that diagnosis. The pain was typical of malignant disease of the pharynx and larynx, extending, as it did, right up to the ear.

Dr. J. DONELAN showed a *Youth, aged Nineteen, with Fracture of Septum and Depressed Nose, improved by Operation and Paraffin Injection.*

The patient had fallen on the handle of a garden fork, which was stuck in the ground in such a manner that the end of his nose was turned upwards, the septum being smashed into fragments, and great disfigurement resulted.

An attempt was made to replace the septum by lateral compressions and the use of splints, and, considering the amount of displacement, was very successful. Subsequently the external deformity was treated by paraffin injection, and the patient considered that a great improvement had been effected.

Dr. GRANT asked what the melting-point of the paraffin was in this case.

Dr. DONELAN said he had used a low melting-point (105° F.), with a view to the paraffin being probably more easily replaced later by fibrous tissue.

Dr. DUNDAS GRANT showed a *Case of Fixation of Vocal Cord with Extreme Pain in Swallowing—(?) Tuberculous Perichondritis—in a Female Patient aged Forty-five.*

Mrs. S. C—, aged forty-five, was first seen in January, 1904, when she complained of her throat and difficulty in swallowing and hoarseness of twelve months' duration. The mucous membrane of the pharynx was very anæmic; there was a large amount of secretion in the larynx and infiltration of both ary-epiglottic folds, much more marked on the right side, the vocal cord on that side being in a state of complete fixation. There were signs of consolidation at the right apex. In addition to general treatment she was ordered a powder of orthoform and resorcin to inhale through a glass tube. Her pain in swallowing had in spite of this continued extremely severe, and she could only take liquid food. The condition was probably one of tuberculous perichondritis of the right arytenoid cartilage, and the exhibitor would be glad of any suggestion for treatment. The case answered very much to the description of those which the late Dr. Gougenheim, of Paris, treated by removal, by means of large punch forceps, of the great mass of the swelling. Moritz Schnitz used to recommend deep incision by means of powerful scissors, and the exhibitor would be glad if the members of the Society would place their experience of these methods of operation before him.

Mr. SYMONDS asked Dr. Grant if he had made an examination of



the cricoid region of the œsophagus to see if there were any stricture there. The patient was unable to take food, so that possibly there was some malignant disease interfering with the movement of the right cord. He suggested this as an alternative explanation.

Dr. GRANT said he would be glad of any suggestions for the purpose of relieving the pain in swallowing, which was rapidly wasting the patient. In reply to Mr. Symonds, he had not examined the cricoid region of the œsophagus.

Dr. DUNDAS GRANT showed a *Case of Chronic Œdema of the Larynx* (formerly shown February 6, 1903) in a *Middle-aged Female Patient, probably Tertiary Specific Infiltration, greatly improved under Mercurial Inunction.*<sup>1</sup>

Up till the end of July of last year the patient took with considerable regularity a mixture containing 1 drachm of the solution of perchloride of mercury and 5 grains of iodide of potassium. The œdema diminished slightly, and she then stopped treatment until the middle of September, when she returned complaining of soreness of the left side of the throat of about a fortnight's duration, with pain on swallowing and a cough. There was found to be some infiltration of the left anterior pillar, with a slightly excavating ulcer. Under a repetition of the treatment this improved, and at the end of October she was admitted into the hospital for inunction. This was carried out nightly for about a month, and since then she had been taking at intervals the iodide of potash and mercury. At the present time the infiltration had steadily been getting less, so that the vocal cords could be seen in their entirety. The great improvement under mercury seemed to indicate that the supposition that the case was one of gummatous infiltration was probably correct, but no evidence, either direct or indirect, had been available.

Dr. DUNDAS GRANT showed a *Case of Ulceration of the Pharynx with Cervical Fistula and Secondary Œdema of the Right Half of the Larynx—? Specific Perichondritis of Arytenoids.*

Mrs. E. K—, aged thirty-one, wife of a policeman, was referred to Dr. Grant on December 15, 1903, by his colleague, Dr. Wingrave, on account of difficulty in swallowing and infiltration of the tissues of the right side of the neck, pushing the larynx over to the left side. There was seen a deep excavated ulcer on the pharyngeal

<sup>1</sup> JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, vol. xviii, p. 266.

aspect of the larynx and on the right side of the pharynx at a considerable depth. The right arytenoid region was the site of very considerable infiltration, the mucous membrane being tightly stretched and smooth, but of the red colour of inflammatory rather than dropsical œdema. The right vocal cord was very sluggish as compared with the left one. The examination of the sputum revealed no tubercle bacilli. The probability seemed to be that there was gummatous infiltration of the tissues of the neck, tertiary ulceration of the laryngo-pharynx, and probably specific perichondritis of the right arytenoid cartilage.

Apparently there was no history of injury. She was in good health until the middle of the year 1902, when a slight difficulty in swallowing began to trouble her. About a year before she came under notice she had suffered from some uterine disease, from which she said she had completely recovered. About the end of 1902 she had an eruption on her face which lasted for some weeks, but she noticed nothing of the kind in any other part of her body; she was not conscious of having had a persistent sore throat. She had had five children and three miscarriages, but those of her children that were alive alternated with the miscarriages, so that the evidence of a specific cause was not clear.

She was at first ordered iodide of potassium and perchloride of mercury, and was then taken into the hospital to be submitted to mercurial inunctions, under the action of which her symptoms improved slightly, so that on December 20 it was noted that she said that she swallowed milk "beautifully," as also some rice pudding, in a way she had not been able to do for several weeks. Her temperature on admission was  $102.6^{\circ}$ ; it fluctuated slightly, and on December 23 fell to  $99^{\circ}$ , when she had a rigor and it sprung up to  $105.6^{\circ}$ . During this time the side of the neck had become more swollen, deep-seated fluctuation could be detected, and there was some dyspnoea. Mr. Nunn saw the case in consultation, and it was decided that incision should be made. An incision was made over the most prominent part of the swelling close to the anterior border of the sterno-mastoid, when a quantity of pus with shreds of necrosed tissue of the most foetid description came away. Instantly the patient's breathing became very much embarrassed, an intubation tube was introduced and artificial respiration proceeded with; the patient was brought round, and fortunately without the necessity for tracheotomy having arisen. An opening in the trachea, or even in the crico-thyroid space, would almost inevitably have led to septic pneumonia. A counter-opening was made to the left side of the trachea

and also behind the right sterno-mastoid muscle. The temperature remained about  $100^{\circ}$ , only rising over  $101^{\circ}$  on one occasion—four days later; for a week it continued normal, with scarcely any fluctuation, but during the last four weeks has been fluctuating between  $98^{\circ}$  and  $100^{\circ}$ . On January 27 iodide of potassium was again administered, and a small projecting portion of the margin of the pharyngeal ulcer was removed by means of punch forceps for examination and for the elimination of the possibility of it being epitheliomatous in nature. It was found to consist simply of granulomatous tissue covered with a ragged stratified epithelium, presenting none of the characters of epithelioma and containing no tubercle bacilli nor giant-cells. On February 2 liquid food escaped through the incision in the neck. The exhibitor asked for suggestions with regard to diagnosis and treatment.

Mr. SYMONDS said he understood that the swelling had gone down, and that the infiltration was greatly diminished.

Dr. GRANT thought at first it was a gumma, and that any incision was to be avoided; but it seemed to have broken down, and he had to incise it. An immense quantity of foetid pus and sloughy tissue came away.

## Abstracts.

### NOSE AND ACCESSORY SINUSES.

**Fischer, E.**—*A Case of Naso-pharyngeal Polypus.* "La Presse Otolaryngologique Belge," December, 1903.

The author reports the case of a naso-pharyngeal pedunculated growth, the size of a hen's egg, in a youth aged sixteen, which he removed by means of a Gottstein's curette introduced between the velum and the tumour. In order to completely destroy the insertion of the neoplasm, the naso-pharynx was afterwards thoroughly curetted with Lange's curette. The hæmorrhage was insignificant. The pedicle, which was very slender, appeared to spring from a point facing the left nasal choana.

*Chichele Nurse.*

**King, Gordon.**—*Some Observations of the Treatment of Accessory-sinus Disease.* "New Orleans Medical and Surgical Journal," February, 1904.

This is a brief review of the prevailing opinions on the treatment of these diseases. The author prefers the Caldwell-Luc operation for maxillary sinusitis.

*Macleod Yearsley.*

Fish, H. Manning.—*Frontal Sinusitis a Cause of Accommodation Paresis*.  
 "New Orleans Medical and Surgical Journal," February, 1904.

The author quotes four obscure cases of eye-strain improved by treating concomitant frontal sinusitis. He considers that, by causing a partial loss of range of power of accommodation this trouble can be considered an etiological factor of myopia, in that a ciliary cramp or spasm can be invoked from the increased strain necessary to overcome this accommodation paresis.

Macleod Yearsley.

Stieda, A. (Königsberg).—*Cheesy Empyema of the Nasal Accessory Sinuses*. "Arch of Otol.," vol. xxxii, No. 5.

Three cases of "rhinitis caseosa" are described, leading to disfigurement and the formation of fistulæ. They required external operation, and recovered. Internal operation, if practicable, is in the first instance to be preferred.

Dundas Grant.

## LARYNX AND TRACHEA.

Fischer, Louis.—*A Study of the Condition of the Upper Air-passages before and after Intubation of the Larynx; also an Inquiry into the Method of Feeding employed in the Cases*. "Archives of Pediatrics," February, 1904.

This is a paper based upon the examination of two series of cases operated upon between 1896 and 1900, one group being intubated in hospital, the other in private practice. The former children belonged, as a rule, to the labouring class, were very anæmic and extremely susceptible to infection. The number of such cases were ten, eight of which required 1 intubation, one 3, and one 4 intubations. The ages ranged between eight months and six years. Eight cases out of the ten showed some form of rickets, and the author remarks that there seemed to be a certain predisposition for the development of laryngeal stenosis in children affected with diphtheria who are rachitic. In all the cases some form of chronic tonsillar or pharyngeal condition was found. All the children in the series were breast-fed. Antitoxin was also used in every case, and the intubation was done exclusively with rubber tubes, the old metallic tubes having been long ago discarded in America.

The second series comprised twenty-six cases intubated in private practice. They ranged in age between eleven months and five years. Fifteen cases required 1 intubation, two 2, three 3, one 4, and two 5 intubations. The children were all of the better class, with better sanitary surroundings, better food, and received more prompt medical aid. Most of them were bottle-fed. Nineteen were rachitic. Not one had a normal throat at the time of intubation; adenoids, enlarged tonsils, and chronic rhino-pharyngitis were met with in almost every case. Antitoxin was used in every case.

In his conclusions Fischer emphasises two important points. (1) The tolerance of the larynx to a tube for many weeks; one case having worn a tube for twenty-six days, another case twenty-five days. (2) That a proper-fitting tube constructed of rubber leaves no evidence of chronic inflammation directly traceable to the tube. Every one of the cases was questioned carefully if any catarrh originated from, or could be associated with, the wearing or removal of the tube, and gave negative replies.

Macleod Yearsley.



**Kronenberg, E.** (Solingen).—*The Treatment of Laryngeal Tuberculosis.*  
 "Münch. med. Woch.," Nos. 15 and 16, 1903.

The writer considers primary tuberculosis of the larynx so rare that it may be left practically out of account. Surgical treatment is of most avail in the rare tuberculous tumour, of somewhat less in circumscribed infiltrations and ulcers. Laryngo-fissure may be useful for the exposure and treatment of otherwise inaccessible ulcers in suitable subjects. When tracheotomy is required on account of stenosis, the larynx may be opened and cleared. As regards treatment *per vias naturales*, it is inadvisable to convert infiltrations into ulcers by surgical interference. They may yield under climatic and general treatment. Spontaneous healing is a possibility to be kept in mind. Tuberculous ulcers in well-conditioned patients should be removed *in toto* if this is possible, as on the epiglottis, but rarely elsewhere. Kronenberg uses double curettes, not single ones. How are we to treat the majority of our cases, namely, those in which the removal of the whole disease is obviously impossible? In the worst cases palliation is alone to be aimed at, but in milder ones it is otherwise. The author at first used curettes and forceps with energy and hopefulness, but has now given them up. He removes granulations, incises abscesses, scarifies œdemas, but beyond that confines himself to the mildest remedies, such as the insufflation of iodoform or other powders after syringing out the larynx to wash away the secretion by means of Fränkel's syringe with saline or soda solution. Oily solutions, especially with menthol, are valuable. Infiltrations should be left alone unless they can be completely extirpated. Lactic acid has wrought much harm, but has its sphere of usefulness, as in the after-treatment of ulcers or infiltrations which have been operated on. Without depreciating sulpho-ricinate of phenol, phenosallyl, phenol, formalin, trichloride of iodine, etc., Kronenberg is in favour of trichloroacetic acid, but still more of the galvano-cautery, especially in ulcerations and granulations on the posterior wall of the larynx. Kafemann, in infiltration of the epiglottis, makes puncture with the galvano-cautery, and rubs in trichloroacetic acid. The author does not here discuss inhalations and symptomatic remedies—orthoform, anæsthesin, etc.,—but considers the general treatment, especially the systematic building up the strength of the tissues, as of even more value than the finest curettement.

In the discussion which followed the reading of this paper, Dr. Meissen, of Hohenhonnef, laid stress on the "silence cure" strictly carried out. Dr. Proebsting thought curettement often valuable, and recommended the use of a tube for self-inhalation of powders, especially di-iodoform. Tracheotomy was sometimes good in advanced laryngeal tuberculosis when the lungs were in satisfactory condition. He had not found hetolin injections of use in laryngeal phthisis. Drs. Blumenfeld, Moses, Lüders, and Keller spoke in praise of the galvano-cautery.

*Dundas Grant.*

**Rickard** (Saint-Louis).—*On a Case of Extraction of a Foreign Body from the Bronchus.* "Gazette des Hopitaux," February, 1904.

On February 13, 1903, a young boy three and a half years old, whilst playing with his father, who was nailing down carpets, was suddenly seized with a violent fit of coughing, and said he had just swallowed a nail. A practitioner called in did not share this opinion.

Three days afterwards the boy had an attack of shivering, with fever and cough, symptoms which were taken to indicate influenza.

On March 18, more than a month after the first seizure, a diagnosis

of broncho-pneumonia was made, and he was removed to Pau. There Dr. Meunier, who examined him, made out a focus of broncho-pneumonia in the left subspinous fossa, at a point corresponding to the pulmonary hilum. The breath-sounds were scarcely perceptible in the left lung, and Dr. Meunier considered from the physical signs and history of the case that a foreign body was probably present in the bronchus. He requested a radioscopic examination; it gave no result, but the proof drawn from the *cliché*, however, showed a dark spot at the inner extremity of the sixth intercostal space, which encroached on the spine and extended in the direction of the bronchus; it appeared narrow above and thicker below, giving one the impression of a nail having its point directed upwards. Measurements showed that it was situated in the left bronchus.

With a view to extraction a special forceps and an electro-magnet were constructed, and on April 6 the patient, having been anæsthetised, M. Diriaut performed tracheotomy. The successive use of the magnet and forceps introduced proved useless, and asphyxia threatening, the child was put back to bed.

After forty-eight hours' rest a fresh radiograph showed the nail to be 88 mm. from the tracheal wound; the electro-magnet which had been employed was too short, and, in the case of the forceps, they had not been introduced deeply enough.

On April 9, under anæsthesia, the forceps were again used, and at the second grip a nail 15 mm. long was seized 4 mm. from its point. The nail, which was slightly oxydised, had remained in the left bronchus fifty-seven days.

The patient made an uneventful recovery, and was in excellent health at the end of April.

With regard to the diagnosis in these cases the author insists on an examination by radioscopy and radiography, or more directly still by bronchoscopy. The former is open to all, but the latter requires an amount of familiarity with the technique only possessed by few. Foreign bodies of feeble density, such as fruit stones, grains, and small fragments of bone, would not be discovered by radioscopy and radiography. Bronchoscopy would then be the correct method of examination.

As to treatment, when the ordinary methods fail an attempt should be made to extract the foreign body with forceps or magnet through the tracheal opening under radioscopy. This, the writer says, may be successful if the body be clearly discernible, but oftener than not, owing to its smallness, oscillation of the shadow, coughing, etc., the method will prove futile. Under such circumstances it would be better to obtain a trustworthy radiogram, and, having performed tracheotomy, to remove the body by means of an electro-magnet as used by Lermoyez, or a special forceps, as was done by Meunier in the case the subject of this communication. When a bronchoscope is obtainable and one possesses the necessary *tactus eruditus*, it would be the preferable guide to the use of instruments for extraction in these cases.

H. Clayton Fox.

## THYROID.

Mancioli, T. (Rome).—*Goitre at Monte Celio, Rome*. "Archiv. Ital. d Otologia," etc.. February 1904, p. 136.

The author describes with statistical tables the occurrence of goitre in an epidemic form in this district during the past twenty or twenty-five years, it having been previously unknown there or in the surrounding

districts. During this period the adult female population have mostly taken to hiring themselves as wet-nurses by profession. The district is somewhat isolated, and the result is that the population have closely inter-married. The author conclusively shows that the water supply does not count in the etiology. Heredity, which affects only the females, predisposes to thyroid hypertrophy, and the development of a true goitre is connected with the state of malnutrition and anæmia which, from various causes, prevails at puberty, during child-birth, and especially from frequently repeated and prolonged lactation. The goitres were almost always fibrous, rarely gelatinous, never vascular. The author from his experience is led to deny the view of other writers that there is a connection between disease of naso-pharyngeal adenoid structures and goitre.

James Donelan.

### EAR.

**Geronzi, G.** (Rome).—*On the Substitution of a Gauze Tampon for Stacke's Guard in opening all the Cavities of the Middle Ear.* "Archiv. Ital. di Otologia," etc., February, 1904, p. 136.

The author points out certain dangers to the osseous lamina it is designed to protect, especially when the gouge is used in this operation. To obviate them he proceeds as follows:—Having opened the antrum, he packs the bottom of the cavity with gauze, and having thus protected it from all accidental shocks, proceeds to break down the external wall with the gouge; as he works on towards the tympanum more gauze is introduced. The gauze is used in much the same way if it is desired to remove first the outer wall of the attic. The author finds that this method renders the operation much simpler and safer, and mentions that Rossi and Ferreri have adopted it "in preference to the classic protector of Stacke," which the author "has always regarded as an enemy rather than a help."

James Donelan.

**Nuvoli, G.** (Rome).—*The Acoustic Function of the Semicircular Canals.* "Archiv. Ital. di Otologia," etc., February, 1904, p. 123.

The author, in a most interesting and instructive paper, traces the biological and developmental history of the semicircular canals, which are essentially aquatic organs, having their greatest development and greatest functional activity in fishes. Morphologically they are closely related to the canals of the lateral line and in terrestrial animals, in whom the lateral line has disappeared, continue in relation to an aqueous fluid (endolymph, perilymph). The author describes his researches at considerable length, but the results are in no wise different from those already obtained, the canals being regarded as organs of equilibrium.

James Donelan.

**Heiman, Alfred** (fls).—*Two Cases of Cholesteatoma of the Middle Ear cured by Intra-aural Treatment.* "La Presse Oto-laryngologique Belge." January, 1904.

A woman, aged thirty-two, the subject of old-standing suppuration of the ear, following scarlatina in infancy, complained of severe pains in the right ear and right side of the head, which came on suddenly two days earlier, after a bath. She had fever, with rigors, rapid pulse, anorexia, furred tongue, and constipation. There was tenderness over the mastoid



and temporal regions, as well as in the meatus. The postero-superior wall of the meatus bulged downwards, and behind it a mass of cholesteatoma could just be seen. The patient having declined operation, the author endeavoured to give relief by other means. He ordered instillations of glycerin with carbolic acid, leeches and ice to the mastoid, and six grains of sodium salicylate to be taken every two hours. Besides this, the tympanic cavity was washed out daily through the Eustachian tube. On the fifth day, during forcible syringing of the ear, a mass of cholesteatoma came away, with immediate relief. Ten days later all disquieting symptoms had disappeared.

The second case was that of a man aged twenty-two, in whom similar symptoms supervened, also after a bath. The mass came away after four days, and a fortnight later the patient was well. *Chichele Nourse.*

**Toeplitz, Max.**—*The Education of Children with Impaired Hearing.* "The Post-Graduate," January, 1904.

The author points out the sparcity of institutions for these children when compared with those for the education of the blind. He briefly describes the normal hearing, then the hearing in the aurally disturbed child, his psychic development, and finally, his education. It is not the lack of hearing as such, but the conscious impediment in the development of speech that is of extreme detriment to the child with hardness of hearing, since it is thus prevented from thinking.

In dealing with the education of these children Toeplitz thinks that hearing-tubes and similar devices may be used to conduct the child's own voice into the ear for better pronunciation, but not continuously. Pedagogic treatment should begin early, even before the usual school age, as these children are usually much spoiled. The eye and tactile sensations should be practised, particularly the muscular sense, by rhythmic movements of the extremities and organs of speech. For the latter blowing instruments should be used to exercise the inspiration. Above all—and this is to be done at the early stages,—association between the perception of the object and its conception should be methodically taught. The author finally points out that Groszmann holds that a close co-operation of physicians and education is imperative to do full justice to these children. *Macleod Yearsley.*

## THERAPEUTICS.

**Juliusberg, F.** (Frankfort).—*Gummata at the Site of Injection of Preparations of Mercury.* "Münch. med. Woch.," No. 15, 1903.

In some instances the injection of insoluble preparations of mercury has been followed by the formation of swellings presenting many characteristics of gummata. Juliusberg says much care is required in compounding the mercurial salts with the paraffin in order that they may cause no irritation and thereby diminish the likelihood of the development of such swellings. A useful list of references is appended.

*Dundas Grant.*

**Holzapfel** (Kiel).—*The Sterilisation of Small Quantities of Surgical Dressings.* "Münch. med. Woch.," No. 16, 1903.

The dressing material is contained in a cylindrical metal receptacle and steam is driven into what is its upper part, during the process, from a



small boiler with a spirit-lamp. The steam passes down through the material and escapes through a small opening, which is afterwards closed. The receptacle is then detached from the boiler-tube, and the connecting opening is closed by means of a milled head. The apparatus is made by Schädel in Leipzig.  
*Dundas Grant.*

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## REVIEW.

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*Diseases of the Ear: A Text-book for Practitioners and Students of Medicine.* By EDWARD BRADFORD DENCH, Ph.B., M.D., Professor of Diseases of the Ear in the University and Bellevue Hospital Medical College; Aural Surgeon, New York Eye and Ear Infirmary; etc. Third Edition, revised and enlarged, with 15 plates and 158 illustrations in the text. New York and London: D. Appleton and Co., 1903.

The first edition of this work appeared in 1891, and the call for a third during the past year is sufficient evidence that it has been highly appreciated. The reason of this appreciation is obvious to those who give the handsome volume the careful study it deserves. The subject of diseases of the ear is treated in a clear and exhaustive manner. All difficulties are looked fairly in the face, and are discussed with the same freedom and detail as if they were placed by the reader before the author in confidential conversation. In addition to his own experience and strong personal opinions, the author gives the fullest evidence of having studied each portion of the subject in the works of others, notably those of German and American origin. It is very difficult, therefore, to find any omissions in the accounts of the various morbid states. As before, the classification of the different diseases errs on the side of sub-division rather than of combination. Conditions, which by some would be looked upon as stages or degrees of the same disease, are here and there enumerated as individual pathological entities, as, for instance, in the case of the acute inflammatory affections of the Eustachian tubes and tympanum. Nothing, however, is lost so far as practical requirements are concerned, and the resulting elaboration probably makes the statements more instructive than would otherwise have been the case. In this new edition many additions to the illustrations are to be found, especially in the anatomical sections. The operative treatment of the dangerous sequelæ of suppurative disease of the middle ear and petrous bone is considered in much greater detail than in previous editions. The surgical anatomy of the internal jugular vein is described in considerable detail, and the indications for its ligation carefully considered. Possibly the risk of "locking the wolf in the fold" by leaving the uppermost part of the vein with its contents *in situ*, might in another edition deserve further discussion. The author's results are, however, most admirable.

The work as a whole will be found by the student a singularly lucid guide to the science and art of otology, and we doubt if the specialist can read many of its pages without coming across some new fact or suggestive statement. The new edition will only establish still more the popularity of Dr. Dench's text-book.

THE  
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EDITORIAL.

**THE SEVENTH INTERNATIONAL CONGRESS OF OTOTOLOGY.**

THE following particulars with regard to the forthcoming Congress have been furnished to us by the General Secretary, and those of our readers who are interested are requested to note the particulars given below. It is hoped that a large number will find it possible to attend this important meeting in this charming locality, where a very cordial reception may be counted on. A reduction of 50 per cent. will be allowed by the French railway companies to members attending the Congress.

Dr. Lermoyez, Secretary-General, requests us to state that the Seventh International Congress of Otology will be held at Bordeaux from August 1 to 4, 1904, and will be patronised by the Minister of Public Instruction.

The official languages of the Congress will be French, English, German, and Italian.

A sum of 3000 francs was presented by the Baron Léon de Lenval, of Nice, to found the Lenval Prize to be awarded on the occasion of the International Congresses of Otology.

It was decided by the fifth International Congress, held at Florence in 1895:—

1. That the interest of this sum accumulated in the interval between two otological congresses should be presented to the author who had effected the most marked progress in the practical treatment of affections of the organs of hearing during the period

in question, or to the inventor of some easily portable apparatus capable of markedly improving the hearing of deaf people.

2. That this sum of 3000 francs should be deposited in a public bank in the hands of the President of the Jury.

3. That the International Otological Congress should elect on each occasion a Jury of seven members, who should announce their decision at the last sitting of each Congress.

The present members of the Jury are:—Professor Politzer, of Vienna (President), Dr. Benni, of Warsaw, Dr. Gellé, of Paris, Professor Pritchard, of London, Professor St. John Roosa, of New York, Professor Kirchner, of Würzburg, Professor Grazi, of Florence, and Professor E. J. Moure, of Bordeaux.

The Lenval Prize will, therefore, be awarded at the forthcoming International Congress, which will be held in Bordeaux from August 1 to 4, 1904.

Those desirous of competing for the prize are invited to send in the grounds of their candidature before July 1, 1904, to Dr. E. J. Moure, President of the Committee of Organisation of the Congress, 25 bis Cours du Jardin-Public, Bordeaux.

A museum of instruments, as well as of anatomical and pathological specimens dealing with diseases of the ear, the nasal fossæ, and the naso-pharynx, will be organised during the Congress. The museum will include naked-eye and microscopical preparations, and also drawings and photographs. It will be placed in the building of the Faculty of Medicine, and the large amphitheatres will allow of an effective arrangement of whatever collections members of the Congress may wish to send.

This part of the programme will be organised by Drs. Guément and Lafite-Dupont.

Those who wish to send exhibits to the museum are requested to give the earliest possible notice; in any event packages ought to arrive at Bordeaux by July 1 next at the very latest. A special form of label is sent with the notices which have been distributed to most of those interested, and they can be procured on application by those who have not received them.

Those who have received invitations are requested to reply not later than May 1, and those who wish to make any communication should send in the title as soon as possible after having been inscribed as members of the Congress. They are also requested to address to the secretary before May 1 a *résumé* in a few lines of the paper which they wish to present. The time occupied in the reading of a paper is not to exceed fifteen minutes, and any communications which take a longer time will require to be condensed.

The following subjects for discussion have been arranged :

1. *The Choice of a Simple and Practical Acoumetric Formula.* Introduced by Professor Politzer, Professor Gradenigo, and Dr. Delsaux.

2. *Diagnosis and Treatment of Suppurations of the Labyrinth.* Introduced by Dr. Brieger, Dr. von Stein, and Dr. Dundas Grant.

3. *Methods of Opening and of Treatment of Cerebral Abscess of Otitic Origin.* Introduced by Dr. Knapp, Dr. Schmiegelow, and Dr. Botey.

The subscription amounts to 25 francs, and this entitles to a copy of the *Transactions*. It should be paid to the Treasurer, Dr. Lannois, Rue Émile-Zola, 14, Lyons.

Those attending are requested to state whether they will be alone or accompanied by ladies or other members of their families.

The local organisation at Bordeaux consists of : President of Organisation of the Congress, Dr. E. J. Moure ; Secretary, Dr. Brindel ; Museum Committee, Drs. Guément and Lafite-Dupont ; Hôtel and Reception Committee, Drs. Claoné and Dupond ; Entertainment Committee, Drs. Ardenne and Beausoleil.

Proposals for admission to the Congress ought to be addressed to M. le Docteur Lermoyez, Rue de la Boétie, 20bis, and the subscription, 25 francs, should be sent to M. le Docteur Lannois, Rue Émile-Zola, 14, Lyons.

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## PRESIDENTIAL ADDRESS TO THE BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

Delivered on March 11, 1904,

BY JOHN BARK, F.R.C.S. EDIN.,

Honorary Surgeon, Throat and Ear Department, Stanley Hospital, Liverpool.

GENTLEMEN,—It was with much misgiving that I accepted the invitation of the Council to allow myself to be nominated for the Presidency of this Association. I felt my entire unworthiness to fill so important and honourable an office, and this feeling was greatly enhanced when I looked back on the list of former Presidents and saw there the names of the great pioneers of our specialty. I knew I should make but a poor and unworthy successor to such as Morell Mackenzie, Lennox Browne, or McNeil Whistler. I could not claim a place in the temple of fame with them. Looking to more recent times, to last year indeed, I



fully appreciated the great difficulty I should have before me in trying to emulate the example of Dr. Wingrave, whose conduct in the chair has been beyond all praise, and whose work, especially in the pathology of our subject, has done so much to advance our knowledge. However, a campaign is not won by generals only. The common soldier is also a necessity, and no doubt should be recognised, and I feel that in selecting me you have intended to do honour to the numerous band of earnest and hardworking practitioners of our specialty—men who have not much time nor opportunity for scientific investigations, but who none the less are able to thankfully appreciate and apply the work of others. It is as one of such that I accept the honour you have conferred on me, and here tender you my warmest thanks not only for it, but for much more. I am deeply indebted to you all for the many and great kindnesses I have received at your hands, and for the numerous and cordial friendships I have made.

I must thank you on behalf of the country members for conferring the office on one of us. We feel that in coming here and enjoying these meetings the bargain is too one-sided. We receive out of all proportion to what we give. The difficulty of bringing here the material results of our labours is so great that it is rarely possible to do so, and we feel that our contributions to the work of the Society are so meagre, that recognition of us on your part is all the more generous. For those of you who practise in the Metropolis, it will be difficult to conceive how refreshing it is for the provincial laryngologist to come here. At home, he is largely isolated, and comes into contact with but few who are particularly interested in his subject, and the chances of discussing and comparing notes and experiences are few and far between. Here he gets the opportunity of mixing with the acutest intellects that are engaged in working out the problems of his daily life, and he rarely returns to his own town without feeling that he has rubbed some corners off, and has gained something to help him to answer some of the questions that the study of his cases is daily suggesting. Isolation begets narrowness; intercommunication, broadness of view.

In accepting office I ask for your loyal support in helping me to conduct the affairs of the Association, and to carry on its traditions in a manner worthy of the successors of the great and honourable men who have preceded us. The list contains the names of almost all those who in this country have been prominent in the investigation of those diseases that are our special study, and in looking through the list of communications made to the Associa-

tion, one cannot but appreciate the completeness with which the whole field has been traversed, and the importance of the discussions to which they have given rise. I look back to many meetings with the greatest pleasure, but to none with so much as to the truly great meeting in the summer of 1895, whereat were present so many distinguished visitors from all parts of the world. I live in the hope of seeing such another.

After what I have said, and before this audience, it is unnecessary for me to say anything more in justification of the existence of this Association. If our specialty has any right to exist, such a society is a necessity, and I am sure, with all the complexity of modern methods and apparatus, no one will say that humanity could be as well served as it is by other than specialists.

Still, I always feel thankful that I spent the first few years of my medical work in general practice, and many more as surgeon to a general hospital, for I have found the experience and knowledge gained then of infinite service.

In those days, at any rate in the provinces, our specialty had no existence, and all that was done for the diseases we now treat was done by the general surgeon or physician, except perhaps "Aural Surgery," and that chiefly consisted in syringing ears, twisting out polypi, the occasional use of the Politzer or Eustachian catheter, or in the making of a Wilde's incision, and was done by the ophthalmologists. True, the laryngoscope was well enough known, but scarcely any but a few advanced physicians used it. I well remember how in my young days it was quite customary to prepare the patient for several days with good big doses of bromide for a laryngoscopic examination.

The eye, of course, was commonly enough looked into, but, strange to say, no one looked into the nose. It was strongly instilled into me that the best way to examine the nose was to make a digital examination with the little finger.

I have thought, having no scientific discoveries or special work to bring forward as the subject of this address, that I could not do better than place before you some of the experiences through which I have passed, and conclusions I have come to in my twenty years of work. I cannot, of course, deal with everything, but I trust that the following *résumé* will not be out of place.

With the exception of the use of reflected artificial light, I think there can be no doubt that the introduction of cocaine has done more than anything else to make our specialty possible. I do not think that any of the more recently introduced local anæsthetics have justified their position as competitors with it. I

have used eucaine and chloretone and have been much disappointed with them and have returned to cocaine, which, when properly applied, gives results as nearly perfect as possible.

I consider it essential to use an absolutely fresh solution (5 to 20 per cent.), and, in the case of the nose, apply it by means of absorbent wool pledgets. In pharyngeal cases I apply it with a swab, and in laryngeal by a spray.

Before cocaine the removal of nasal polypi was barbarous in the extreme, and people dreaded it so much that they frequently refused to have it done, at any rate a second time; while now-a-days I have known patients to say it was not much worse than having their hair cut.

Evulsion by straight dressing forceps without the aid of vision was the only method taught and practised when I was a student. No doubt, in competent hands, much good work was done, but the method was painful and bloody, and there was much risk of injury to healthy tissues. The cranial cavity even has been opened, as in the well-known case reported by Tillaux, and troublesome cicatricial bridges were not uncommon results.

I have used various kinds of specially constructed forceps and snares, including the galvano-cautery snare, but in common with most rhinologists I have come to consider the cold wire snare the most valuable and reliable tool for the work.

There is, however, one case in which I still adhere to the use of forceps. When a large mucons polypus fills the posterior choana, or even the naso-pharynx, I find it much more easy, and less painful to the patient, to seize the base of the polypus with a pair of strong serrated forceps, guided by the left forefinger in the naso-pharynx, than to get a snare round it.

I find the punch forceps of Symonds, Hartmann, or Grünwald, with subsequent use of the galvano-cautery, very valuable for destroying the polypoid buds and granulations so commonly found about the edges of the hiatus semilunaris, the uncinatè process, and the middle turbinal.

Though I have met with several cases in which complete turbinectomy was called for, I never participated in what I considered the craze which followed the introduction of Carmalt Jones' spokeshave. I saw much of the results of the operation in the hands of others, and no doubt the respiration through the affected nostril became free enough; but the complete removal of so important a physiological organ as the turbinal should not be done unless absolutely necessary, as its excision often results in chronic dry rhinitis and even pharyngitis or laryngitis, and the results were

often more inconvenient than the original condition, for the relief of which the operation was performed.

There are, no doubt, many turbinals that require reduction in size, and if the galvano-cautery is not sufficient I find the operation which Mr. Lake has called anterior turbinectomy very satisfactory, and have seen no unpleasant results follow it.

Just as a turbinal should not be removed merely because it is large, so a septal crest or spur, or a deviation, need not be treated unless it produces symptoms, is visibly ugly, prevents the removal of polypi or the use of the Eustachian catheter. I have tried many methods of removal by knife, chisel, gouge, saw, or trephine, by electrolysis or galvano-cautery, but now always use either the knife or a nasal saw—Bosworth's or Goldsmith's. Great care should be taken not to wound the turbinal, in which event troublesome synechia is likely to occur. Preferably, I choose cocaine anæsthesia, but much depends on the temperament of the patient and the size and position of the deformity. Often general anæsthesia is compulsory. In my experience, severe hæmorrhage is not common; but should the artery of the septum be divided, troublesome bleeding may ensue. In this event I plug firmly with antiseptic gauze, and repeat each day until the bleeding ceases. During the last few years, instead of cocaine alone, I have been using 20 per cent. cocaine in 1 in 1000 adrenalin solution. This renders the operation much more bloodless, but has the disadvantage that the cases must be watched carefully for some hours, as, when the contraction passes off, very troublesome hæmorrhage is apt to occur, though no large vessel has been wounded. On this account I have recently again taken to plugging the nose after these operations, and find that even very light plugging is quite sufficient to prevent recurrent hæmorrhage.

Deviations in the present day are much more successfully treated than formerly, thanks to Asch's operation and its modifications. Fifteen or twenty years ago the routine treatment was to break up the septum by means of Adams' or Walsham's forceps and insert a perforated vulcanite plug in each nostril to maintain the correct position. This was very unsatisfactory in most instances, for, on removal of the plugs, the deformity often recurred. With Moure's operation, which I now use, I have had a satisfactory amount of success. I always place a Delstanche's splint on each side for a few hours, until the hæmorrhage has ceased, after which a Lake's rubber splint placed on the convex side will keep the septum in the required position. This should be taken out and cleansed or changed every day for about a fortnight or three weeks, when the



septum, in the majority of cases, may be relied on to remain in the improved position.

For the treatment of the accessory sinuses, punching away the ethmoid cells with Hartmann's conchotomes has proved quite satisfactory to me in all cases of ethmoidal suppuration, and I have never found the operation of clearing away the ethmoid with ring knives under chloroform necessary.

In frontal-sinus suppuration I first remove the anterior end of the middle turbinal in the hope, which is frequently realised, that this may free the fronto-nasal passage and secure efficient drainage of the sinus. When this is not successful I trephine the sinus and, after removing any obstructions, make a large opening through the floor into the nose, clean out with hydrogen peroxide, plug with antiseptic gauze, bringing the end out through the nose, and then close the external incision. The packing is removed through the nose on the second day. I desire here to express my great indebtedness to Mr. Mayo Collier, from whose work on the "Surgery of the Frontal Sinus" we have learnt so much.

More exact clinical observation and improved methods of examination have brought many more cases of antral disease under our notice than was formerly the case. The so-called "latent" empyema can scarcely be any longer regarded as latent, its symptoms being so well understood, and the examination of the antrum so easily made. Still, just as one is never absolutely sure that there is pus in a chest until one has explored it with a needle, so it is essential before operating for maxillary-sinus suppuration to introduce a trocar. I use a Lichtwitz trocar, and perforate the inner wall through the inferior meatus. To drain I always operate through the canine fossa in the following way:—I use a specially shaped, shouldered, trocar chisel, and, under nitrous oxide anæsthesia, drive it with a single blow of the hammer into the antrum, and at once introduce a specially shaped rubber drainage-tube made for me by Messrs. Down Bros. This is fitted with a flanged end at an angle of 45°, which lies easily between the gums and cheek and keeps the tube in position. The patient is instructed to wash out the antrum by forcing lotion, by orbiculo-buccinator action, through the tube and antrum into the nose. I find in the majority of cases this is satisfactory; if not, I do a radical operation on the lines of Caldwell-Spicer.

Laryngologists, I think, do not excise the uvula very frequently, recognising that most of the symptoms that used to be ascribed to its elongation are really due to other causes. It is still, however, very frequently removed by some practitioners, who, whenever a

patient complains of any subjective throat symptoms or voice fatigue, snip it off with as little compunction as pathological knowledge. We have improved very little in this matter upon the knowledge and practice of even the most ancient surgeons; for example, in the seventh century of our era, Paulus Ægineta wrote that it should only be removed when it causes cough, sleeplessness, and suffocation, and then only as much should be removed as exceeds its natural length, as complete extirpation is injurious, he says, to the voice and chest. It is interesting to note that even then the uvula was held by a special forceps adapted to the purpose. Speaking of the ancient surgeons and their ways, I have been much struck by the method they employed for excision of the tonsils. Paulus Ægineta operated in the same manner as was still in vogue when I was a student, namely, pulling out the tonsil with a pair of forceps or tenaculum, and cutting it off with a knife—called an *ancyclotomus*.

Celsus directs us to “scrape the membrane with the finger and tear it out,” which is really enucleation.

Albucasis recommends scissors, but also seems to have invented a sort of guillotine, and figures an instrument consisting of a lunated piece of iron fixed to a handle.

Of the several methods practised at the present time, all of which I at one time or another have tried, I now practically use but two, viz. the guillotine and morcellement. Up to fifteen years of age I usually employ a modification of the ordinary spade or Mackenzie guillotine. The blade of the instrument I use is only five inches long, and the handle, instead of being at an obtuse or right angle, is at an acute one. I find that, especially for rapid work—that is, operating under nitrous oxide gas,—one has more control of the instrument, and can, therefore, remove the tonsils more completely and expeditiously. Above fifteen years of age I now always use the method of morcellement, considering it more satisfactory than the guillotine. The enlarged tonsils of the adult are so frequently adherent to surrounding parts that this is often the only way, I find, of completely removing the whole organ.

I use Rualt's punch for the larger portions, and finish off with Hartmann's conchotomes. The complete removal of both tonsils can be easily done in this way in one sitting, and under cocaine anæsthesia. I have used this method in more than 200 cases, and the hæmorrhage has always been trivial.

Hæmorrhage after tonsillectomy is undoubtedly a rare occurrence. In children it is exceedingly rare. Out of 6000 operations on children under fifteen years of age, I have met with it but twice,

in a boy of thirteen and in a girl of ten. The hæmorrhage was severe in both, but not alarming in either. I have also met with severe hæmorrhage in five adult cases. In all seven cases the guillotine was used, and the anterior pillar of the fauces was not wounded in any, and astringent sprays or gargles were useless. In five the hæmorrhage was controlled by steady and continuous pressure by means of a pad soaked in turpentine or adrenalin held on the stump with the middle finger, the thumb of the same hand pressing below the angle of the jaw. In two cases a spouting vessel was visible, which was stopped in one case by forcip-pressure, and in the other by ligature.

Although adenoids were known to Wm. Hunter, and were occasionally described by others, their removal as a regular practice dates from the work of Meyer, of Copenhagen, in 1868. The operation used to be performed under chloroform or ether, but, deaths not infrequently occurring, I think all of us have as far as possible discarded them and taken to nitrous oxide. Where enlarged tonsils are present, as well as adenoids, as they nearly always are in children, I believe many still use chloroform, but for the last nine or ten years I have invariably used nitrous oxide with oxygen, which I find gives plenty of time for the double operation.

When I started operating under gas there was no gag suitable for the purpose. The surgical gags interfered with the administration of the gas, and the dental mouth-props interfered with the operation. Dr. Wingrave and I brought out, separately, gags which rendered the operation not only possible, but easy, under the short nitrous oxide anæsthesia. There are a few, but very few, cases for which neither Wingrave's gag nor mine is suitable. When the central incisors project considerably beyond the lateral, the gag is apt to slip, and in this case I use Doyen's gag, but find it much less comfortable and convenient for general use.

I strongly believe in operating with the head hanging over the end of the table. No doubt, to commence with, the operator finds the tongue somewhat in the way for the tonsillectomy, but this difficulty is with very little practice easily surmounted, and the advantage of keeping the larynx free from blood alone more than compensates for this. Besides, as regards the adenoids, this position is incomparably superior for using the Gottstein curette and the finger.

The lingual tonsil, in my student days, was never recognised as a distinct entity. We were certainly aware of the presence of a good deal of adenoid tissue at the root of the tongue, but no one ever thought of attributing any symptoms to it, or of treating it

surgically. Of course, the common use of the laryngoscope accounts for its perhaps undue prominence during late years. Hypertrophy of this structure is not, in my experience, very common; that is to say, hypertrophy sufficient to produce symptoms. When it occurs, it is usually in adults, and has given rise to two prominent symptoms, viz. a feeling of fulness at the root of the tongue and occasional sensations of choking. As a rule, galvano-puncture reduces it sufficiently to give relief, but cases sometimes present themselves calling for more radical treatment. I then remove it with a pair of rectangular punch forceps made for me for that purpose about ten years ago by Messrs. Meyer and Meltzer.

I have recently met with a case of exceptional enlargement, occurring in a man of fifty-four years, and consisting of two lobes, each the size of a Barcelona nut.

I have only met with one case of acute abscess of the lingual tonsil. A man of thirty complained of painful swallowing, and the laryngoscope showed a large red swelling of the lingual tonsil, which fluctuated on palpation, and which on incision yielded pus with complete relief.

Until the patient and successful work of Krause of Berlin, and Heryng of Warsaw, showed us the value of the proper surgical treatment of laryngeal tuberculosis, patients were practically left to their fate; local applications of morphia, cocaine, and other anæsthetics being the only treatment adopted, and that only in the attempt to relieve the terrible odynephagia. The precepts and example of these two great workers in our specialty have done more for suffering humanity in the alleviation of this terrible symptom than words can describe, and, although most cases of laryngeal phthisis inevitably succumb, yet the relief from pain and the consequent ability to take food prolong life and make it more endurable. A few brilliant cases have been reported, where even a cure resulted, with restoration of voice. I have found both Krause's double curettes and Heryng's curettes of great service in removing the tubercular infiltration, and so facilitating the application of the lactic acid.

Another plan of treatment which I have adopted for a few years, especially where the disease has progressed to ulceration, or where, owing to the intractability of the patient, the above surgical treatment is impossible, is the insufflation of equal parts of orthoform and resorcin. It is often quite astonishing how quickly this relieves the symptoms and cleans up the ulcerating surfaces.

In no branch of our art has there been more improvement than



in the technique and instruments for use in endo-laryngeal surgery. Formerly benign growths, foreign bodies, etc., in the upper respiratory passages were removed by means of external operations, but now, thanks to the laryngoscope and the various and ingenious instruments which have been devised, the practised laryngologist removes such growths as papillomata, fibromata, cysts, etc., of the larynx with comparative ease; and even in cases of suspected malignancy a small scrap removed in this way may give positive microscopic evidence and cause the patient to submit to the radical operation much more early than he otherwise would have done, which makes so much for success or failure in these cases.

I have found Dr. Dundas Grant's laryngeal forceps of especial value in removing growths from the edges of the cords, and have often removed at the first attempt with these forceps growths that I have failed to remove with others.

Valuable as this method is in the treatment of benign growths, I think all modern laryngologists are agreed that the complete removal of even the smallest malignant growths in this way is impossible, and any attempt to do so I consider unjustifiable and unfair to the patient. The successful removal of a malignant neoplasm necessitates the removal of so much surrounding tissue, and the condition is so serious, that if any operation is to be done, it must be an external one, and endo-laryngeal interference, I think, only increases the rapidity of growth. In my experience, when the growth has affected the parts outside the larynx, any curative operation is out of the question, but when the disease appears to be intrinsic, I advise an exploratory thyrotomy, and, should it then be found that the whole of the disease can be safely removed, we may proceed as far as removing half of the larynx with satisfactory results; but should it be found that the disease is so extensive that complete laryngectomy would be necessary, I think it better to proceed no further, but close up the wound, as the results of the complete operation are in my experience always unsatisfactory, and I believe the patients as a rule will live longer and in greater comfort after a palliative tracheotomy.

The importance of early diagnosis and treatment cannot be over-estimated in cases of malignant laryngeal disease. In all cases of even slight hoarseness lasting over a month a careful examination by a skilled laryngologist is imperative. If this were to become a routine practice, thyrotomy would be frequently successful and complete laryngectomy rarely necessary.

Concerning tracheotomy, there is really very little to be said, and all surgeons are much in agreement on the subject.

Intubation, except in the case of syphilitic and other forms of laryngeal stenosis, where it is very valuable and may result in a complete cure, cannot be said to be a substitute for it, certainly not, to my mind, in laryngeal diphtheria. Here I regard tracheotomy, if not done too late, as the best way of averting death from asphyxia, and combined with the use of antitoxin has in my hands been very successful.

Where the membrane extends below the larynx one should not be in a hurry to insert a tube, but endeavour to clear out any loose membrane, and I have on several occasions, with success, thoroughly curetted the inside of the trachea, as in two cases reported by my late House Surgeon, Dr. Dick, in the *Lancet*, July 25, 1896.

The treatment of aural diseases has advanced greatly in my time, and especially in the case of suppurative diseases of the middle ear. From Wilde's incision and perforation of the antrum we have passed to the complete and excellent operation of Stacke which, if the post-aural incision is closed and drainage maintained through the enlarged external meatus, gives a result so satisfactory and sightly that patients allow it to be done much more frequently and earlier than formerly, and risk of serious diseases of the brain and of surrounding parts is minimised. I consider the complete Stacke operation one of the greatest triumphs of modern surgery.

There is another operation which is often efficient in relieving middle-ear suppuration, and is especially valuable in attic suppuration; I refer to ossiculectomy, first suggested by Schwartze in 1873. Performed with Delstanche's extracteur de marteau, the operation is much easier, and is often successful, rendering more serious proceedings unnecessary. This operation has also been much praised in middle-ear sclerosis, but, although I have done it a dozen times at least, I have seen no good permanent results.

Gentlemen, I have finished what I fear is but a cursory and imperfect account of some of the views and conclusions I have come to in my many years of practice of the branch of medicine we especially study.

I trust I have not over-wearied you, and in concluding let me express the hope that I have, in reviewing the subject, made myself clear, that I have given offence to no one, and acknowledged my indebtedness justly to each of those who have helped to construct our little chapel in the great temple of knowledge.

As time goes on I shall likely enough modify many of my views; our knowledge will extend, new discoveries be made, and fresh builders will appear on the scene. One portion of our edifice

will be pulled down and replaced by another, let us hope always better, work. Another part will from time to time require reconstruction, and possibly some great event may happen necessitating our pulling down the whole fabric and replacing it by another, perhaps by two or three separate edifices. Yet I doubt not that, as necessity arises, there will always be found in our Association architects to plan and devise and workmen to hew and build, and from time to time it will be well if some one, abler than I, will take a survey of the whole work from his view point, and indicate what he considers good and what he thinks inferior work. Such I have tried to do to-day, and I trust my effort has not been altogether unacceptable.

### SUPPURATION IN THE LABYRINTH.

BY A. L. WHITEHEAD, M.B., B.S.LOND.,

Aural Surgeon to the General Infirmary, Leeds.

HINSBERG's paper on labyrinthine suppurations, published in 1902, and translated in an abridged form in the *Archives of Otolaryngology*, vol. xxxi, Nos. 2 and 3, has not until quite recently attracted the attention it deserves.

The statistics collected in this paper are from many sources; since their publication only isolated cases seem to have been recorded, and so far as I know there are no statistics from English clinics bearing on this question.

For some years past a careful record has been kept of the cases of temporal bone suppuration which have occurred in the aural department of the General Infirmary at Leeds. During the last thirteen years, our predecessors, my colleagues and myself have operated upon 691 cases of acute and chronic mastoid disease.

Amongst these labyrinthine suppuration was present in 27, or 4 per cent. Of the 27 cases, 11 or over 40 per cent. terminated fatally, and 16 were cured or are at present under treatment with every prospect of cure.

In the 16 cured cases, facial palsy was present in 8, that is 50 per cent.; in 6 of these 8, sequestra, involving the labyrinth more or less extensively, were present. In only 2 were there any symptoms, beyond the facial palsy, indicating that the labyrinth was involved. In these 2, intense headache, vomiting, and vertigo were present.

Of the 8 cured cases in which facial palsy was not present, in 4 a fistula of the external semicircular canal only was present; in the other 4 there was extensive caries, the cochlea and semicircular canals being more or less destroyed and replaced by granulation tissue. In only 2 out of this series of 8 cases were symptoms present. In 1 with a fistula only, there had been intense vertigo and incessant vomiting for five days, these symptoms passing off entirely after operation. In the other where extensive caries was present, vertigo had been very severe for twelve days and was entirely cured by operation.

Out of these 16 cases, only 1 was acute, and occurred in a child three months old. Very extensive caries was found, and the cervical glands were enormously enlarged. No tubercle bacilli could be found, although the child's mother had died of acute phthisis one month after the child's birth.

Of the 11 fatal cases, cerebellar abscess was the cause of death in 4; and cerebellar abscess with meningitis in 2 others, that is to say, cerebellar abscess was present in 6 out of 11 fatal cases. In 2 meningitis was the cause of death, and in 1 meningitis with thrombosis of the lateral sinus. Two died of marasmus. In every case of this series the disease was chronic.

Facial palsy was present in 6 of these 11 fatal cases, that is 54 per cent. Of these 6, 3 had necrosis with formation of sequestra, and they were also cases of cerebellar abscess. In 1 there was extensive caries, and suppuration had extended through the internal auditory meatus, causing meningitis. In the remaining 2, marasmus was the cause of death, extensive caries of the labyrinth being present in both.

Of the 5 cases without facial palsy, necrosis with formation of sequestra was present in 2, and in both of these cerebellar abscess was present. In 2 the labyrinth was partially replaced by granulation tissue; in both of these meningitis was present, and in 1 there was also a cerebellar abscess; in this case the path of infection causing the meningitis could be traced through the internal auditory meatus. In the remaining 1 case an acute suppuration had apparently extended, two days before operation, through the fenestra ovalis, the labyrinth, and the internal auditory meatus, causing a general meningitis. There was no caries of the labyrinth itself, although the mastoid was extensively diseased.

In only 1 of the 11 fatal cases were there any of the special symptoms of labyrinthine suppuration beyond the facial palsy present in 6. In this 1 case there was no facial palsy but intense vertigo relieved by operation; subsequently symptoms of cerebellar



abscess developed, but operation was not successful. In 2 of the cases of cerebellar abscess there were no symptoms whatever, and death occurred suddenly and unexpectedly, while the wound, after the removal of the bone disease, was apparently following a normal course.

Of the total 27 cases, facial palsy was present in 14, vertigo in 5, no special symptoms whatever in 11. It is somewhat interesting to note that facial palsy only occurred fourteen times amongst the 691 cases apart from those associated with labyrinthine suppuration, and 8 of these were fatal cases; 1 died from sarcoma, 3 from meningitis, and 4 from tubercular meningitis or general tuberculosis.

Sequestra were found in 11 cases, 5 of which were fatal, all from cerebellar abscess.

With regard to age, 23 cases were between four and thirty-four; only 3 were under twelve months, of these 2 died of marasmus and 1 got well; 1 was 62 and is now getting well.

In only 1 case out of the 27 was there any probability of tubercle being the cause of the affection. In connection with this point, it is interesting to note that out of a series of 100 fatal cases of temporal bone disease, tubercle was only certainly present in 15, and in not one of these was the labyrinth affected.

Fatal intra-cranial complications occurred in 9 cases, 33 per cent.; of these 9, 6 died from cerebellar abscess, 22 per cent., and 3 from meningitis, 11 per cent.

Associated with this it is of interest to find that out of the same series of 100 fatal cases mentioned above, meningitis was the cause of death in 17, 3 of which were due to labyrinthine suppuration; cerebellar abscess in 18, in 6 of which the infection had passed through the labyrinth, and 5 through the lateral sinus, and in 7 through the area of bone lying between the sinus and the posterior semicircular canal. The importance of disease in the bone in this area, as being a point from which infection frequently spreads into the posterior fossa, has not in my opinion been sufficiently emphasised.

From a study of these statistics it is evident that extension of suppuration from the middle ear to the labyrinth is not infrequent, and is associated with a high degree of mortality. In all the fatal cases in this series, where intra-cranial complications were the cause of death, suppuration had extended backwards into the posterior fossa; in no case was the middle fossa invaded.

The treatment of these conditions must proceed on ordinary surgical lines, carious bone must be completely removed, even if

large areas of the labyrinth are sacrificed. Sequestra should be removed if loose; if still fixed an attempt may be made to facilitate their removal by partial decalcification by the use of dilute nitric acid as suggested by Dr. Urban Pritchard.

Perhaps the most important point brought out by the study of these cases is the indication afforded of the best route for the exploration of the cerebellum when cerebellar abscess is suspected. After the radical operation has been performed the lateral sinus should be exposed, and, if found healthy, the bone between the sinus and the posterior semicircular canal should be removed, including any portions of the labyrinth which may be diseased.

After the dura mater in contact with this area has been incised, the abscess will be found in the immediate proximity, and may be readily opened and drained. It is often exceedingly difficult to find the abscess if the cerebellum is explored through a separate trephine opening posterior to the lateral sinus, and if found it can only be drained through a considerable length of healthy brain tissue, which may readily become infected and spreading œdema set up.

The very high mortality of cerebellar abscess compared with that of temporo-sphenoidal abscess is probably to some extent accounted for by the difficulty experienced in finding and draining the abscess through a separate opening posterior to the lateral sinus.

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#### NOTES.

THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.—The Annual Extra-Metropolitan Meeting will be held in Glasgow on Saturday, May 21, under the presidency of Dr. Thomas Barr, President of the Society.

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BRITISH MEDICAL ASSOCIATION.—At the Annual Meeting to be held at Oxford from July 26 to July 29 inclusive the following subjects have been selected for special discussion in the Section of Laryngology and Otology:

1. Wednesday, July 27.—“The Treatment of Non-Suppurative Disease of the Middle Ear.”

2. Thursday, July 28.—“The Ætiology, Treatment, and Prognosis of Innocent Growths of the Larynx.”

3. Friday, July 29.—“Intranasal Disease as a Determining Factor in the Production of Laryngeal and Pulmonary Affections (Spasmodic and Catarrhal).”

## SOCIETIES' PROCEEDINGS.

PROCEEDINGS OF THE LARYNGOLOGICAL  
SOCIETY OF LONDON.

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*Eighty-eighth Ordinary Meeting, March 4, 1904.*

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P. McBRIDE, M.D., F.R.C.P.Edin., *President, in the Chair.*

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The following cases and instruments were shown :

The PRESIDENT showed a knife for slitting up the tonsillar lacunæ.

The PRESIDENT also showed a nasal forceps specially designed for removal of remnants of polypoidal tissue.

Dr. FURNISS POTTER showed a *Case of Immobile Right Vocal Cord in a Youth, aged Nineteen.*

The patient came under observation complaining of symptoms of giddiness and stuffiness in the nose. The detection of slight huskiness led to examination of the larynx, which showed that the right cord was fixed in the middle line. The arytenoid was swollen and red, the mucous membrane of the nose and nasopharynx swollen and hyperæmic, and there was much thick mucus adhering to the posterior pharyngeal wall. The tonsils were enlarged, and presented the appearance of superficial ulceration. There was an enlarged gland in the right side of the neck, and glands could be felt in both groins. The patient had a cough, and thought he had become thinner recently. On examination of chest no definite sign of disease was discovered—sputum examined, but no tubercle bacilli found. The exhibitor was of opinion that the immobility of the cord was due to infiltration, most probably tuberculous, involving the crico-arytenoid articulation. The swelling in the arytenoid region had increased during the last month.

Dr. FURNISS POTTER showed a *Case of Infiltration of Larynx involving both Crico-arytenoid Joints, with Indurated Ulcer on Tongue.*

The patient, a man aged sixty, began to suffer some difficulty of breathing about Christmas, 1902; the voice became husky about the same time. He had some difficulty in swallowing on several occasions. When first seen a month ago he complained of painful sensations on right side of throat.

On examination a hard, ulcerated swelling was seen on the edge of the tongue, far back. The right vocal cord was fixed in

the middle line (or a little external to this) and was almost invisible, being obscured by the swollen ventricular band. The arytenoid region was involved in a mass of infiltration, which included the right ary-epiglottic fold and the right ventricular band. The left cord was markedly hampered in abduction, the excursion outwards on deep inspiration being very limited in extent. On phonation the left came into apposition with the right cord. The size of the glottic aperture was much diminished, and there was marked stridor on inspiration. As the patient had had attacks of severe dyspnoea, it was considered unsafe to allow him to go about in this condition, and accordingly tracheotomy was performed. No glands were detectable in the neck. He had had a "sore" about forty years ago; but had no trouble, as far as he could remember, which would lead to a suspicion of constitutional infection.

A section had been taken from the ulcer on the tongue and submitted to microscopic examination. However, Dr. Kelson, who had kindly examined it, reported that though suggestive of epithelioma, the appearance was not conclusive owing to the fact that the sample removed was too superficial.

The patient had been treated with iodide of potassium and perchloride of mercury, but with no beneficial result; in fact, the laryngeal swelling had increased during the period the patient had been under observation.

Dr. DUNDAS GRANT said he thought there would be general agreement with Dr. Potter's diagnosis in both this and the preceding case, namely, that the former was tubercular and the latter malignant.

The PRESIDENT said that in his opinion both cases were well worthy of notice, especially the latter. It seemed to him, though, a very doubtful question whether this could be looked upon positively, or anything like positively, as a malignant condition. The appearance, in the first place, of the ulcer on the tongue, putting aside the question of the laryngeal disease, did not point to malignancy. In the second place, there was a smooth swelling of the right ventricular band, and then on the left side there was a pure white vocal cord. In these circumstances it was excessively difficult to understand the form of malignant disease which would produce such a state of affairs. On the other hand, he was not prepared with an alternative diagnosis, nor was he altogether inclined to reject the possibility of malignancy. He would, however, rather incline to the specific theory.

Mr. P. DE SANTI thought there was a considerable amount of difficulty as to the diagnosis. Taking all the facts into considera-



tion, he rather inclined to the opinion that the laryngeal condition was one of malignant disease, though there were certain points about it which made him very doubtful. The absence of enlargement of the glands was marked, and if the disease were malignant there should by now most certainly be glandular infection, although one did see cases of extrinsic origin where the glands did not become involved until a late stage of the disease. The condition of the tongue was not like malignant disease, and still further lent doubt to the case. On the whole he was inclined to advise the man to have an exploratory thyrotomy done, and in that way one might come to a conclusion as to the condition of the disease itself, and then, if it was thought necessary, the thyrotomy could be turned into a more extensive operation, such as partial or complete extirpation of the larynx, if found to be malignant. There would be no harm in a thyrotomy if carefully performed; indeed, in some of these cases of doubtful malignancy he was of opinion that laryngologists erred in not performing an exploratory thyrotomy more frequently. In grave cases of doubt exploratory thyrotomy would clear up the diagnosis, and if malignant disease were present a suitable operation would give the patient the last chance, in fact the only chance, of cure. In doubtful abdominal cases a surgeon did not hesitate to explore the abdomen, and why should he hesitate with the larynx? If properly performed, an exploratory thyrotomy was a safe operation, and should not affect the voice subsequently.

Dr. H. SMURTHWAITE showed a *Specimen of Tuberculosis of Larynx and Trachea of Rapid Course in a Man aged Sixty-seven.*

The first laryngeal symptom—slight huskiness of voice, later followed by dysphagia—only appeared some nine weeks before death. In this period weight fell from 12 to 9 st. Throughout dysphagia was the most distressing symptom—he dreaded taking food in any form.

When first seen on December 2, 1903, the epiglottis was markedly infiltrated, showing a pseudo-œdematous condition; owing to the pendulous position and swelling a view of the interior of the larynx was not possible, and only the arytenoid cartilages and ary-epiglottic folds could be partially seen; these also showed signs of infiltration.

Superficial necrosis of the lining membrane of the epiglottis and arytenoid cartilages was noted on December 21, 1903, and rapid destruction of submucous tissues followed, allowing a full view of the interior of the larynx ten days later. The cords and

false cords were then seen to be studded with tubercles. Death took place January 13, 1904.

Paintings illustrating above changes were also exhibited.

Dr. HERBERT TILLEY showed a *Patient upon whom Radical Operations for Empyemata of Left Frontal, Ethmoidal, and both Maxillary Sinuses had been carried out.*

Miss E——, aged twenty, was first seen in consultation, May 22, 1902. She complained of a constant nasal catarrh often associated with violent cough. The discharge from the nose was profuse, and as a rule was clear rather than purulent; but after a fresh cold it became purulent. The intonation of the voice was very characteristic of nasal obstruction.

Examination revealed swollen nasal mucosa in both nostrils, a few small polypi growing from the left middle meatal region, and an œdematous condition of the corresponding region on the right side. The discharge in the nasal cavities was muco-purulent. Both tonsils were enlarged, and there was also present a considerable adenoid growth.

The tonsils, adenoids, left middle turbinal, and neighbouring polypi were removed on May 29, 1902.

On December 15, 1902, patient was again seen on account of a continuation of the nasal discharge, some headache, and the persistence of cough and bronchial catarrh.

Nasal examination revealed a return of the nasal polypi on the left side, and the discharge in both middle meatuses was more purulent. It was now easy to pass a cannula into the left frontal sinus and to syringe out a small quantity of pus. There was tenderness to pressure upon the floor of the sinus. Both antra were dark upon transillumination, and by intra-nasal exploration were proved to be secreting pus.

January 28, 1903.—The left frontal sinus was operated upon, the whole of the anterior wall being removed, and a large opening made into the nose, the suppurating anterior ethmoidal cells being destroyed at the same time. Both antra were also drained through the alveoli in the hope that the antral mucosa would recover itself if the sinus-cavities were drained and frequently irrigated.

On June 5, owing to continuation of discharge from both antra, the Caldwell-Luc operation was carried out on each side. The sinus-cavities were filled with large polypoid granulations, which were carefully curetted away, the cavities disinfected, and the bucco-antral wound allowed to close. No packing of the antra was carried out.

The results had been entirely satisfactory. The scar on the eyebrow was scarcely noticeable, and examination by means of a suitably curved probe demonstrated that the original antral cavities were very much diminished in size owing to the growth of granulation tissue, which had become organised and (since there was no purulent discharge) covered with epithelium.

Dr. HERBERT TILLEY showed a *Case of Bilateral, Frontal Ethmoidal, Sphenoidal, and Maxillary Empyemata operated upon by Radical Methods.*

Patient, male aged fifty-eight, was first seen on October 23, 1901, complaining of some neuralgia over the left forehead of six months' duration. The pain was always worse in the morning. There was a profuse purulent discharge of a "fishy" odour from both nostrils, necessitating the use of fifty handkerchiefs a week. He had had polypi removed on a few previous occasions. Examination of the nose showed the middle meatuses full of polypi and profuse suppuration. Having cleansed the nostrils of discharge, pus was then washed out of both antra and then again out of the right frontal sinus. It was impossible to gain access to the left sinus because of the presence of a large nasal spur on the left side of the septum. Finally it could be demonstrated that the ethmoidal cells and sphenoidal cavities were full of pus, the bony labyrinth of the former being very thin and friable. The patient would submit to no radical operation (as was advised) beyond drainage of both antra through the alveoli. Drainage tubes were therefore inserted, and for nearly two years the patient continued to irrigate the antra daily with various mild antiseptic lotions, while from time to time polypi were removed from the higher nasal regions. An increase in the severity and frequency of the headache, as well as a general feeling of ill health, led him to assent to radical operation last year. On June 2 both frontal sinuses were opened and the whole of the anterior walls removed, the septic contents curetted away, and large communications made with the nose through the ethmoidal regions, which were simultaneously destroyed with ring knives. Great difficulty was experienced with the left ethmoidal region because of the presence of the large obstructing spur on the left side of septum, and added to this the patient was very faint and collapsed from the beginning of anæsthesia, and the operation was a very anxious and hurried one.

The interesting features in the after-treatment of the case were two.

1. From the day of the operation no pus could ever be

syringed from the antra, showing that they were only acting as reservoirs of pus.

2. The right sinus healed rapidly and the left in a great part, but there always remained some discharge issuing externally from its inner and lower angle, while a small amount of pus could always be syringed from the higher and posterior region of the nose.

Dr. Tilley concluded that this came from the ethmoidal and sphenoidal regions, and in September, 1903, under general anæsthesia, the external incision was continued downwards in front of the lachrymal sac to the infra-orbital margin (Killian's incision). Pushing aside the soft parts, the nasal process of the superior maxillary bone was exposed and removed. This at once exposed the anterior end of the lateral mass of ethmoidal cells and provided a splendid view of the diseased cells, which were easily and safely curetted away until the anterior wall of the sphenoidal cavity was reached. The patient made an uninterrupted recovery, and was free from all traces of disease in the nose. His headaches entirely disappeared, and his general health was better than it had been for years.

The case illustrated the difficulties which might be offered by an obstructing septal spur and a means of overcoming them.

The scar left by Killian's incision was scarcely noticeable, and the advantages of the method in selected cases were extremely great.

It furthermore showed that a sinus antrum may act for years as a reservoir for pus without becoming itself a generator, and furnished an additional argument in favour of opening the higher sinuses before the lower ones when one is dealing with a multiple chronic infection of these cavities.

Dr. HERBERT TILLEY showed a *Case of Chronic Empyema of Left Frontal, Ethmoidal, and Maxillary Sinuses treated by Radical Operation.*

Mrs. B——, aged thirty-three, was first seen March 17, 1903, complaining of temporary attacks of deafness and ringing in the ears, marked nasal obstruction, and an oppressive feeling over the forehead, which rendered her unable to work or enjoy life at all.

Examination revealed purulent discharge from left middle meatus, polypi in same situation, and pus was syringed from the left antrum and left frontal sinus.

March 27.—The anterior wall of the left frontal sinus was completely removed and the Caldwell-Luc operation performed on the antrum, which was full of diseased mucous membrane.



Excepting for a temporary diplopia lasting ten days, the patient made an excellent and perfect recovery, and was free from all nasal symptoms. The scar on the frontal sinus was very slight.

The PRESIDENT congratulated Dr. Tilley on the great success of all these cases, more especially since there was no appreciable deformity resulting from the operations.

Dr. VINRACE congratulated Dr. Tilley on the result of the operation in these cases, and on their suitability for the treatment. It seemed to him that there were some cases where this radical operation was required, and these were cases in point. He felt sure that the patient would admit that he was the debtor of Dr. Tilley, and he thought the Society would endorse that view. There was one point to call attention to, and that was that the excellent results might fairly be put down to the operative measures and not to incidental causes, for the circumstances before the operation, as far as he could ascertain, were practically the same as those afterwards. The case had been followed up by ordinary treatment of the mildest nature to start with. Operation had only been resorted to as a last measure, and with desirable results.

Dr. FITZGERALD POWELL congratulated Dr. Tilley on the present good results he had obtained in these cases. There was one point, however, to which he was inclined to take exception in Dr. Tilley's remarks, namely, the suggestion he understood him to make that in cases of multiple sinusitis the frontal sinus should be operated on and dealt with first, and afterwards the maxillary antrum, as the latter was only the reservoir for the pus from the frontal sinus, and not itself the seat of suppurative inflammation. In his opinion not infrequently certain conditions existed which made it doubtful as to the seat of the suppuration, and he thought it much better to begin by exploring the maxillary sinus first, and if necessary go on to the operation on the frontal sinus later.

Dr. STCLAIR THOMSON, having congratulated Dr. Tilley on his successful operations, asked him what was the condition of the sphenoidal sinus before it was opened. Was it, as he had found on the cadaver, easy to reach with Killian's incision from the ascending process of the superior maxilla? Was there much difficulty in dealing with the hæmorrhage? The Killian operation was straightforward when performed on the cadaver, but frequently in the living subject the amount of hæmorrhage made it difficult. This hæmorrhage might be considerably controlled by packing from time to time with strips of gauze saturated with peroxide of hydrogen. He noted that no attempt had been made in these cases to preserve the Killian bridge, and yet the result was æsthetically

nearly as complete as Killian himself could obtain. Still, he thought Dr. Tilley had been lucky in these three cases, because no one knew better the irregularities of the frontal sinuses, and yet in all these cases the sinus did not extend far towards the outer orbital angle. These cases also showed that the frontal sinus itself was not a complicated matter to deal with. It was the attendant ethmoidal condition which gave trouble. In some cases large fronto-ethmoidal cells ran outwards in the roof of the orbit, forming a sort of double roof to that cavity; while in others they penetrated far inwards in different directions below the true frontal sinus. It was when one had the misfortune to overlook any of these that complications or inadequate results were apt to follow.

Dr. HERBERT TILLEY, in replying to Dr. Powell's remarks, said that all operative procedures presumed that an accurate diagnosis had been made, and in most cases of nasal accessory sinus suppuration this was quite possible. In cases of multiple suppuration the nasal cavities should be first cleansed from all pus, then the antra should be explored, and finally the ethmoidal and frontal sinuses. In this way it was possible to arrive at an accurate diagnosis of the various foci of suppuration. He was in complete accord with Dr. Thomson's experience as to the value of oxygenated water as a hæmostatic when dealing with the ethmoidal cells, and also as to the great importance in the radical operation of breaking down these ethmoidal cells, which spread outwards below the floor of the frontal sinus, and are often separated from the latter cavity by a very thin septum of bone. Dr. Tilley thought that the overlooking of these cells accounted for many cases of recurring suppuration.

Dr. W. H. KELSON showed a *Case of Nasal Sinus in a Girl*.

A girl, aged twenty, had suffered for about eighteen months from a sinus situated about an inch from the tip of the nose in the middle line. A probe could be passed upwards for about half an inch; but no bare bone could be felt, nor did the sinus appear to communicate with the nasal cavity. There was the history of a severe injury to the nose at three and a half years of age. The discharge was scanty, but appeared to be pus.

The PRESIDENT remarked on the interest of the case, and inquired whether a probe had been passed and anything had been felt?

Dr. KELSON said that he had passed a probe, which went half an inch upwards. It did not strike bone or enter any cavity.

Dr. DUNDAS GRANT showed a *Case of Ulcer of the Tonsil, probably*

*the Primary Lesion, in a Young Woman with well-marked Cutaneous Syphilide.*

A. P—, aged nineteen, the wife of a policeman, suffering from sore throat of six weeks' duration, was first seen on February 25 at the Central London Throat and Ear Hospital, having been four weeks under treatment elsewhere for diphtheria. The right tonsil was the site of an excavated ulcer on an inflamed and slightly indurated base. The floor of the ulcer was of a light greyish colour tending to opalescence, irregular and shiny; the margins were also opalescent. On the left tonsil, which was not enlarged, there was an indistinct mucous patch. The glands at the angle of the right jaw were greatly enlarged, the corresponding ones on the left side to a very much less extent. When seen there was a well-marked rash, characteristic syphilide, on the arms and other parts of the body; there was a history of ulceration on the labia. The specific nature of the affection seemed to be undoubted, and the nature of the ulceration on the right tonsil with the bubonic enlargement of glands at the right angle of the jaw seemed to indicate that the lesion in this region was a primary one.

Mr. P. DE SANTI said that the woman was suffering from syphilis. There was nothing in the tonsil at present to indicate a chancre—its condition was certainly not typical of Hunterian sore. How long was it since the trouble came? [Dr. Grant: "Six weeks ago, not six months, as mentioned."] It might have looked so before the appearance of the case altered. [Dr. Grant said that the case had improved under a course of mercury.]

Dr. KELSON thought there might be a different interpretation, viz. that the enlarged glands and tonsillar ulcer were connected with the severe attack of diphtheria the patient had recently passed through, and that the syphilis from which she was suffering might have been acquired in the usual way.

Dr. DUNDAS GRANT showed a *Case of Extreme Laryngeal Œdema in a Male Adult, probably Secondary to Tertiary Specific Lesion; treated by Mercurial Inunction and Local Incision; nearly recovered.*

Robert G—, aged twenty-eight, a policeman, first seen on January 28, 1904, on account of hoarseness and soreness of the throat. The voice suggested the presence of a swelling in the throat. There was fulness in the submaxillary region; the affection was of fourteen days' duration; the voice was hoarse; there was very little pain. On laryngoscopic examination there was

found the most enormous œdema of the right ary-epiglottic fold, extending from there on to the corresponding wall of the pharynx and involving the right half of the epiglottis; this was of a pale whitish tint. The right vocal cord was seen only to a very small extent, and was quite immovable. From the absence of constitutional disturbance it was assumed that the œdema was secondary to some other lesion. A history of primary specific infection six years previously was elicited, and the diagnosis made of gummatous perichondritis with consecutive œdema. For a week he was ordered simply a vapour of creasote, but after that time a mixture containing biniodide of mercury. He was ordered to come into the hospital for inunction. This was carried out, and at the end of a week the patient was more comfortable, but the œdema was still very extensive. A portion of the œdematous tissue was nipped out to relieve tension. Microscopical examination revealed infiltration with small round-cells. Rapid diminution followed this, although the inunction had to be interrupted on account of a certain amount of stomatitis having taken place.

Dr. GRANT said that his second case, in its enormous degree of œdema, resembled Dr. Thomson's case. The œdematous tissue formed a big "floppy" mass. With regard to the first case—the young woman with the tonsillar ulcer,—there was no question as to secondary syphilis. It would be difficult to account for those enlarged glands on the right side at the angle of the jaw unless they were buboes connected with a primary lesion in the tonsil. That led him to form the idea that the great crater on the tonsil was a primary syphilitic ulcer. Ought one to expect such a degree of induration as in a Hunterian chancre of the prepuce? On the lip the induration might be very slight indeed, and he did not think they must expect the same degree of induration on the tonsil as would be found in typical chancres in some other parts.

Mr. ATWOOD THORNE showed a *Man, aged Thirty-two, with Adhesions of the Soft Palate to the Posterior Pharyngeal Wall.*

The case was first seen two years ago, when there was only a pin-hole opening between the mouth and the naso-pharynx. The history at the time was that the man had been under treatment for three years, and during all that time he had been taking iodide and mercury because whenever an attempt was made to dispense with these he suffered from a superficial ulceration involving the gums, inside of the cheeks, and tongue. For the same reason, antisyphilitic treatment had been obliged to be continued all the time he had been under Mr. Thorne's care. The great interest of



the case was this: when first seen the opening in the adhesions was a mere pin-hole, and various methods of operation were discussed; instead of closing, the opening had without operative interference got larger month by month, apparently by contraction of the adhesions towards their fixed points in the periphery.

The PRESIDENT said Mr. Thorne wished to know whether it was desirable to interfere with the condition.

Mr. DE SANTI thought there was no necessity for any operation in this case. The patient seemed quite comfortable, and it had now been laid down that any operation for the separation of adhesions of the soft palate to the pharynx, which were very extensive, should be done under special circumstances, such as intense pain round the mastoid region. Two cases of this particular operation of separating the soft palate and pharynx with good results had been shown to the Society. The first was described and shown by Mr. Spencer, and he himself had shown the second case. In every case on record of this operation the indications were vastly greater than any that were present in this case. It was best to leave the patient alone.

Dr. F. POWELL also thought it best to leave the patient alone. So far as these cases were concerned, he had an idea that none of them were very successful, owing to retraction having taken place and the palate receding to its old position. [Mr. de Santi expressed his willingness to bring his case forward to convince Dr. Powell of his misunderstanding.] He remembered that at a previous meeting of the Society it was generally considered that these were never satisfactory cases for operation, retraction always taking place sooner or later.

Mr. A. THORNE said he had no idea now of operating. He showed the case as illustrating a form of centrifugal dilatation. The opening was at first as small as a pin's point and had now become large enough to admit the tip of the little finger.

Mr. R. LAKE showed a *Case of Corditis Tuberosa in a Young Woman not a Singer or Professional Voice User.*

Dr. STCLAIR THOMSON said it was very interesting to see the condition of singer's nodule in a woman who was not a singer nor much of a speaker. The only point worth mentioning was that the patient was in daily contact with someone who was deaf, and she consequently had to raise her voice, though not to any great extent. These two nodules were similar to those which occurred sometimes with those who overused or misused the voice, and it was rare for them to occur in a person not a professional voice user.

Mr. R. LAKE showed a *Case of Tubercular Ulcer of Left Vocal Cord*.

The patient, a young woman aged twenty-three, was exhibited to show a peculiar ulcer on the left vocal cord. This was situated at its extreme edge, and came to a sharp point at either end, with its widest part in the middle. She had been treated in a hospital for other laryngeal trouble, and had more or less recovered before she left. At one time a large swelling of the left arytenoid yielded rapidly to frequent paintings with 10 per cent. iodine vasogene.

Dr. HERBERT TILLEY asked Mr. Lake if he still used applications of lactic acid for superficial tuberculous ulceration of the larynx.

Mr. LAKE, in reply to Dr. Tilley, said that he had for a long time given up using lactic acid except as a vehicle: this patient was, as an in-patient, almost cured with injections. Now, as an out-patient, she could only be treated once a week. The following solution was one he had used for two years for cases with ulceration:—10 parts of carbolic acid, 10 parts of commercial formalin, 50 parts of lactic acid, 30 parts of water.

Dr. FITZGERALD POWELL showed a *Case of Swelling of Right Ventricular Band in a Male aged Thirty-four*.

This man came under observation on February 2. He complained that ten weeks ago he lost his voice; this had continued more or less up to the present. He had no pain. There was no loss of flesh; no night-sweats. No history of syphilis. No evidence of tubercle in his chest.

On examination the right ventricular band was seen red and swollen, and on the anterior margin of the right cord a small papillomatous-like growth was observed on phonation.

Dr. STCLAIR THOMSON suggested that it was syphilitic.

Dr. POWELL said he had put the patient on antisyphilitic treatment for a fortnight—iodide of potash and mercury,—but no improvement resulted. At present he was giving simple soothing remedies.

Dr. FITZGERALD POWELL showed a *Case of Sequestrum from the Nose in a Man aged Thirty-eight*.

Male, aged twenty-eight, tailor. This man went to the hospital complaining of discharges and offensive odour from the nose, especially the right nostril. He had syphilis in 1900, and was invalided from South Africa.

In February of 1900 he noticed a swelling on outside of nose, and both nostrils were completely blocked.

In May, 1902, he was treated at the London Hospital, he thought, for abscess of nasal septum for about two months. From August to November, 1902, he had enteric fever.

On examination a large sequestrum of dead bone was seen in right nostril. The nose had fallen in somewhat, and the septum was perforated. Dr. Powell made an attempt to remove the sequestrum, but had to desist, as it was too painful; and on February 13 he had a general anæsthetic, and the specimen exhibited was removed from his nostril.

Professor A. Robinson, of King's College, who kindly examined the specimen, pronounced it to be the "premaxilla," the grooves for the incisor teeth being apparent.

It was interesting to observe that the patient's incisor teeth were still present and firmly fixed, evidently in callus or new bone thrown out to replace the sequestrum.

Dr. WILLIAM HILL said he had no doubt when this specimen was first passed round that it was generally accepted as a sequestrum formed of the premaxilla. As a matter of fact, it was nothing of the kind, for on examination of the patient it was seen that the *incisive* or premaxillary portions of the maxillæ were present and normal, and carrying firmly fixed teeth. It was probably evident to all that the sequestrum shown was shed from the palate posterior to the premaxillary area, from the region of the anterior palatine canal. This area, a favourite spot for syphilitic necrosis and perforation, might be conveniently described as the Stensenian segment, and it was interesting to remember that a separate centre of ossification was now described for this region (*vide* Cunningham's "Anatomy," 1902). He (the speaker) had shown a real case of premaxillary sequestrum before the Society some years ago in a child, and it was scarcely necessary to add that the sequestrum was removed through the mouth. How a true premaxillary fragment could wander into the nose was somewhat difficult to imagine.

Mr. THORNE asked if the so-called tooth-sockets were really the sockets of teeth or not? He understood that the premaxilla bore the four incisor teeth, and in this case they were shown what purported to be the premaxilla while the teeth were firmly fixed in the mouth.

Dr. HERBERT TILLEY said he was entirely in accord with Dr. Hill's remarks. Last year a patient applied to him with a very swollen upper lip, great inflammation and swelling of the gums

around the upper central incisors, and a fetid purulent discharge from the nose. The incisor teeth were so loose they could be removed with the fingers, and under a general anæsthetic a sequestrum corresponding to the sockets of the incisor teeth was easily removed.

Dr. FITZGERALD POWELL thanked Dr. Hill for the interest he had taken in the cases and his determination to clear up the origin of the specimen shown. He had been himself rather doubtful on this point, and had shown it to several anatomists, who gave various opinions. Professor Robinson, of King's College Hospital, was good enough to examine it, and pronounced it to be the premaxilla. He took this opinion without question, the more so as it coincided with his own. This specimen carried the grooves for the two upper incisors, and he had seen cases of mal-development in children in which this premaxilla, carrying the incisors, had not joined the superior maxillary bones, but protruded forward, and had to be removed or pushed back into position. It appeared to him that it did not make matters clearer to say "it was not the præmaxilla, but the Stensenian section of it." He could not quite follow Dr. Hill's description as obtained from the "Anatomy" he was quoting, but he was not prepared to deny its accuracy.

Dr. H. J. DAVIS showed a *Case of Œdema and Stenosis of the Larynx for Diagnosis*.

This man, aged twenty-eight, had œdema and stenosis of the larynx, the glottis at one time being a mere chink, and the œdema extreme. He was admitted into the Middlesex Hospital three weeks ago with urgent dyspnœa, but this had subsided. The arytenoids and epiglottis were still enormously swollen, and between the arytenoids a translucent, œdematous mass of raised mucous membrane flapped up and down during inspiration. It had a peculiar appearance, and resembled a large mucous polypus; it extended below the cords.

Ten months ago the patient had primary syphilis, and was still undergoing treatment when these urgent symptoms supervened.

The speaker inquired whether the case were one of acute œdema resulting from syphilis alone or one of mixed infection (tubercular and syphilitic)? There were no physical signs in the chest indicative of phthisis.

The PRESIDENT said the case was specially noteworthy considering the relatively short time the symptoms had been present. He



presumed the kidneys and heart were all right, and that there was no evidence of any circulatory obstruction about the neck.

Dr. D. GRANT said that this case was comparable to the first case shown by Dr. Powell at that meeting. In the case he himself had shown the œdema was more unilateral, but it had the same "floppy" character, and he should think that this case, like his, was one of œdema consecutive to a syphilitic lesion, probably perichondritis. A nip with punch-forceps out of the middle of the mass in his own case seemed to hasten the improvement enormously.

Dr. H. L. LACK agreed that it was almost certainly a case of syphilis. A patient he had shown at the last meeting of the Society with undoubted syphilitic lesions had similar great œdema of the larynx, and there was a large flapping mass attached to the arytenoid. As regards treatment, he should recommend the immediate removal with cutting forceps of the large movable piece of œdematous mucous membrane. This would probably reduce the whole of the œdema.

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## PROCEEDINGS OF THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.

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*Sixteenth Ordinary Meeting, held at Chandos Street, Cavendish Square, W., on  
Monday, March 7, 1904.*

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*The President, Dr. THOMAS BARR, in the Chair.*

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The following gentlemen were elected ordinary members of the Society :—

Joseph Nelson, M.D., R.U.I., L.R.C.S.Ireland (Belfast).

James Henderson Nicoll, M.B., C.M.Glas. (Glasgow).

The PRESIDENT said that the Glasgow members had sent a very cordial invitation to the Society to hold its Annual Extra-Metropolitan Meeting in Glasgow. The Society must justify its title to the name of Otolological Society of the United Kingdom, and not limit its meetings to London, but occasionally meet in some of the provinces. They had already met in Edinburgh, in Dublin, and in Liverpool, and the Council had now agreed to accept the invitation from Glasgow, and had decided to hold the meeting on Saturday, May 21. Every effort would be taken to make the

meeting a success, and they hoped that as many as possible would endeavour to be present.

The PRESIDENT then invited the members to resume the discussion on Dr. William Milligan's paper on "The *Ætiology* and Treatment of Labyrinthine Suppuration," which was read at the previous meeting.

Mr. ARTHUR CHEATLE said he was very much interested in Dr. Milligan's paper. The symptoms of labyrinthine involvement had been recognised for a great many years, and had been pointed out to him twelve years ago. He had seen patients with the classical symptoms recover without any operative interference. He wished to know of anything which would indicate where operations on the labyrinth were to be limited. For instance, supposing a carious spot was found on the horizontal semicircular canal or promontory, it might mean that actual perforation had or had not occurred. Were we to limit the operation to the actual spot affected, hoping the disease had been shut off from the labyrinth as a whole, or were we to take it that the whole labyrinth was affected and required more radical measures? In two of Dr. Milligan's cases, recovery occurred after mere local interference; but in another, although the local trouble in the canal only was dealt with, yet the patient died with symptoms which pointed to the whole labyrinth having been affected. In discussing treatment, Dr. Milligan stated that the vestibule might be opened by following the anterior cells of the horizontal semicircular canal, but Mr. Cheatle thought it would be better to follow the posterior, as it led to the lowest part of the vestibule, was away from the facial nerve, and was on the way to the cerebellum. With regard to the symptoms which required the opening of the labyrinth, Dr. Milligan said that, if the classical symptoms existed without any fistula being found, the labyrinth should be opened. Mr. Cheatle thought they ought to be cautious in accepting this, for the symptoms sometimes cleared up without operative interference at all, or after the performance of the complete post-aural operation. He thought that the operation of dealing with the labyrinth might well be done in stages.

Mr. A. L. WHITEHEAD thought in one respect Dr. Milligan's paper was rather disappointing, and that was in the absence of details with regard to his own personal experience. Only isolated cases had been mentioned, and he (the speaker) did not know of the existence of any record or statistics of cases from an English clinic. He therefore thought it might prove interesting to those present if he gave a summary of 691 cases that had been

operated on by his colleagues and himself during the last thirteen years.

Mr. Whitehead's communication will be found on page 242.

Dr. PRITCHARD said he had not many remarks to make on Dr. Milligan's excellent paper, but he wanted to warn the readers of the paper not to pay too much attention to vertigo as necessarily indicating disease of the labyrinth. He did not say exactly that Dr. Milligan had laid that down, but he felt that many reading the paper would be liable to pay too much attention to that, and not enough attention to the question of almost complete deafness. Practically, these cases seemed to divide themselves into two, those in which there was necrosis and those in which there was a carious sinus. It was quite evident what to do in the cases with necrosis—remove it. In cases where the sequestrum was not loose an old plan, he had adopted with a good deal of success, was to use an injection of 1 per cent. of nitric acid, and in a few days the sequestrum became decalcified, and then it might be removed without injuring the adjoining tissues.

Dr. DUNDAS GRANT thought the Society ought to congratulate itself on this subject being brought before it. Dr. Milligan had placed the whole matter before them in that peculiarly happy and acceptable way in which he dealt with so many of the questions of otology. Having read what the German writers had to say on the subject, he thought they would possibly feel that we in this country were a bit behindhand in following up this subject. Whatever the reason might be, he thought what they had heard that day had helped to explain it—it was their extreme modesty, because Mr. Whitehead had brought before them a heap of material of which he felt sure nobody had any idea of its existence, and he thought that that contribution by Mr. Whitehead was one on which the Society was to be particularly congratulated. There still remained, however, a large number of cases in which the diseases of the labyrinth could not be diagnosed, because Dr. Brieger, who was a very candid observer, had told them that out of 169 cases eight had died, and out of those five from meningitis in which the suppuration of the labyrinth was absolutely latent. In three meningitis developed immediately after the operation. With regard to the question of diagnosis when fistulæ, or what they took to be fistulæ, were discovered, Mr. Cheatle had hit upon a point which had struck others, and in a paper which he (the speaker) had lately been reading the author pointed out that this diagnosis was somewhat affected by what he called the subjectivity of the observer, and that some were more ready to

detect fistulæ than others. As Mr. Cheate had said, there could probably be no greater mistake than to probe deeply into a partly eroded semicircular canal to find whether there were or were not a fistula. Then came the question of the numerous cases which they had all met in the course of their practice which had eluded their observation. In future, perhaps, they might be unhappy enough to detect fistulæ much more often than they had in the past; but in the happiness which was sometimes associated with defective knowledge of the subject there could be no doubt that they had in the course of careful operations brought about a condition of things which was desirable in order to lead to a cure of disease of the labyrinth. The operation had unfortunately a tendency to excite labyrinthine suppuration, and in those circumstances he thought it behoved them all to be very careful in their mastoid treatment. He thought that was one of the lessons to be drawn from the study of the subject.

Mr. C. H. FAGGE said that within the last four years he had operated on six cases of middle ear suppuration in which the labyrinth also was apparently involved. In three of these the lesion was gross and unmistakable, but in the other three it was apparently slight, and mainly on account of diminished bone conduction he had advised a radical mastoid operation. At these operations he found no evidence of fistulæ in the external semicircular canal or elsewhere into the labyrinth, which, therefore, was not explored, and healing followed in each case. Afterwards, in one of these cases, he was surprised that the diminished bone conduction was no longer present. He had several times in the course of a radical mastoid on the cadaver tried to explore the labyrinth through the oval window below the facial canal with a small dental burr, and he had found it impossible by this route to investigate the vestibule. He wished to ask Dr. Milligan what instrument he used and how this was done.

Mr. R. LAKE thought they were very much indebted to Dr. Milligan for bringing the subject before them. Interesting cases of suppuration of the labyrinth had been reported from time to time in which very careful examination had been made. He referred to a case which he thought might be used in helping to settle symptoms, and that was reported as far back as 1836, in which a man had a needle broken in his ear and it went through the membrane, and the man died of acute labyrinthine suppuration in four days. With regard to the symptoms, in acute conditions of labyrinthine disease sometimes there was deafness and sometimes not. There was a book published in 1899 in which the author described all



the symptoms, and said one might get any one of the classical symptoms in which labyrinthine suppuration might be absent. Another important point was the question of falling. Sometimes patients had a tendency to fall towards the affected side and sometimes away from it. He believed if only the external canal was involved the patient fell towards that side; but if all the canals, the patient would fall towards the other side. Another interesting question was that of the occlusion of the semicircular canals, which was frequently found in acquired deaf mutism, which he would suggest had been due to an infection of the semicircular canals from meningitis, or other disease of the meninges.

The PRESIDENT said that he quite agreed with Dr. Milligan when he said that the attention given by the profession to this subject had not hitherto been sufficient, and they were all indebted to Dr. Milligan for thus focussing their attention upon the labyrinthine cavity as a seat of suppuration. A very interesting point was the relation of this form of suppuration to the cerebellar fossa. There was no doubt that when extension to the intra-cranial cavity takes place it is in that direction, very frequently leading to meningitis of the posterior fossa—hence the gravity of labyrinthine suppuration. When, in a case of purulent ear-disease, there are present the phenomena which indicate an intra-cranial lesion, much information as to the probable seat of the lesion might be obtained from the examination of the labyrinthine wall during the performance of the radical mastoid operation. Hence the importance of scrutinising carefully the inner wall of the tympanum during the operation, especially of those areas to which Dr. Milligan had referred; because if erosions were found there yielding pus, the discovery would form a clue to the seat of the intra-cranial mischief, namely, the cerebellar fossa. That was a point of great importance, and one to which in the future, after reading Dr. Milligan's paper and hearing this discussion, he would be disposed to pay still further attention. Another point to which he would draw attention is the relation, in such cases, of bone-conduction of sound to air-conduction. Not long ago a case came under his notice, which impressed him, of death from septic lepto-meningitis of the cerebellar fossa, in which the intra-labyrinthine structures were entirely destroyed by suppuration. The state of the bone- and air-conduction was examined during life while the patient could give reliable answers to questions, and he (the speaker) found, notwithstanding the condition of the labyrinth, as shown by *post-mortem* examination, that excess of bone conduction was present on the affected side, and as that was contrary to what the patient would

naturally expect he thought they could rely upon the accuracy of the test. Dr. Jacobson, of Berlin, had also noticed a similar case. Such observations might lead them to modify their views as to the diagnostic value of predominance of bone-conduction over air-conduction. In conclusion, he thought that the members of the Society were very much indebted to Dr. Milligan for the trouble he had taken in the preparation of this important paper.

Dr. MILLIGAN, in responding, thanked the members of the Society for the very kindly reception which had been accorded to his paper. His object in bringing the communication before the Society was not because he had had any very great experience in the subject, but because he thought it was one that had not received the attention which it ought to receive, and he felt that discussion upon it might bring up various practical points which would be of use to all. He thought the points raised were of great practical value, and would lead them to think about the subject, and at any rate would make them realise that there was such a thing as labyrinthine suppuration, and enable them to avoid mistakes owing to the difficulties of its detection by ordinary symptoms, and so help them at times to save the lives of patients. With regard to Mr. Cheatle's question as to how far they were to go in their investigations, that particular point must be left to each individual operator. If a fistula were found in the bone one must follow its track; if it went deep into the labyrinth he saw no reason why it should not be followed to its utmost limits. With regard to the question whether the discharge stopped or not in the cases reported, the discharge was completely stopped in two cases, and the patients were now at work again, but the third died. With regard to the opening of the vestibule, he had opened it along the anterior crus, and for the purpose he had used a very minute burr driven by an electric motor. The enlargement of the oval window was only possible by a very free cutting away of bone, but he had no doubt that in certain cases it would be impossible. As to the question of injury to the carotid artery, he saw no reason why it should be injured any more than in dissecting out glands in the neck. He thought Mr. Cheatle's suggestion as to operating in stages was a good one because it was a lengthy operation. On the other hand, there was always an advantage in finishing an operation of this nature as quickly as possible; the patient was in considerable danger, and it was better to finish at one operation if possible. Although he was quite unable to criticise Mr. Whitehead's contribution, yet he felt extremely indebted to him for bringing forward such a valuable mass of statistics. No doubt there was considerable risk in remov-

ing a sequestrum, and one had to be very careful. If the sequestrum was fairly fixed, his opinion was that it was best to leave it for the time being, or else follow out Dr. Pritchard's suggestion of using some decalcifying preparation. Then with regard to the question of complete deafness or not raised by Dr. Pritchard, none of the cases he had seen were absolutely deaf—there was a little hearing. He fancied it depended upon the particular part involved. There were times when no definite fistula existed, and that was a point they ought to be extremely careful about. Personally he believed in having a very strong light when operating, and he had always used a limelight, and found it very good. Reference had been made to the question of diminished bone conduction, but that was not necessarily a sign of internal ear disease. When performing any operation for chronic suppuration they ought to examine most minutely to see whether there was or was not a fistula. In many cases fistulæ were very small, and it was only by very great care that it was possible to ascertain their existence.

Dr. DUNDAS GRANT communicated a *Case of Thrombo-phlebitis of the Sigmoid Sinus. Operation without Ligature of Jugular Vein. Recovery.*

The patient, a male aged twenty-four, when first seen on November 5, 1903, was complaining of headache, giddiness, vomiting, and rigors of a fortnight's duration, with a history of suppuration of the left middle ear dating from childhood. There was cough and expectoration, and signs suggestive of tuberculous deposit at the apex of the right lung. The radical operation was performed at once, but temperature continued to oscillate within a wide range. At the end of a week the lateral sinus was exposed for about two and a half inches, and broken-down suppurating clot was found in the position of the "knee" of the sinus. This was cleared away until solid normal-looking clot was reached anteriorly, while posteriorly the lumen of the sinus was perfectly empty. The temperature descended below normal almost immediately, and complete recovery ensued.

Dr. HUGH JONES said he would like to ask Dr. Grant what he meant by the phrase "while posteriorly the lumen of the sinus was perfectly empty."

The PRESIDENT said he wished to refer to one point, and that was the delay from the time of the radical mastoid operation to the exposure of the sinus in the presence of such symptoms as rigors and headache and giddiness. Hitherto he had been in the habit of

considering that such symptoms, especially the rigors, demanded immediate exposure of the sinus, and he was rather inclined to deprecate delay in such a case, although in the one referred to by Mr. Grant a happy result followed notwithstanding.

Dr. DUNDAS GRANT, in responding, said that at the knee of the sinus there was a broken-down suppurating clot, and the head of the clot tapered off for the length of about an inch and a half into the lateral sinus, where it lay loose in the channel, which was perfectly empty. This was not collapsed, and, indeed, the possibility of collapse of the sinus was very limited. Apparently there was a blood clot beyond the distance he explored, but it was unjustifiable to push further back. He quite agreed that it would have been better to have explored the sinus sooner than he did, but, as he had said, the patient had signs suggestive of pulmonary tuberculosis, and he thought the continual rise of temperature might be due to disease of the lungs rather than of the sinus. The pulmonary signs cleared up entirely after the treatment of the sinus.

At this point the President had to leave, and Dr. Pritchard took the chair.

Mr. RICHARD LAKE communicated *Four Cases with Sketch Drawings of the Membrana Tympani*; *One Case exhibited Herpes and Three Cases a Condition nearly allied to, if not actually, Herpes.*

CASE 1.—Occurred in a young man who had complained of aural pain for a few days, and there were some herpetic spots on the concha and lip, but none in the meatus. There were four small vesicles on the membrane, of a slightly yellow hue. The treatment adopted apparently gave him sufficient relief, for he never reappeared.

CASE 2.—The patient was a domestic servant, and had suffered with pain in the ear for about two weeks, which she had attempted to relieve by dropping various things into the ear, one of which was eau de Cologne. On examination a small papule was seen on the handle of the malleus. There were no signs of any other papules elsewhere.

CASE 3.—Occurred in a lady aged twenty-nine, who had had pains in the ear for two weeks, especially noticeable after blowing the nose. She had recently been nursing a child, and had had many domestic worries. She also had, two weeks previously, a slight attack of *Herpes labialis*. On examining the ear the upper posterior portion of the membrane was of a bright red colour, and there was a shallow ulcer visible. This was quite well at the



expiration of two weeks. As the inflammation subsided the ulcer took a situation somewhat lower down on the membrane, as was shown by the persistence of a small red spot in the upper and posterior segment for some two or three weeks.

CASE 4.—A child aged seven. Had suffered with pain in the left ear "for weeks." On examination a small, ovoid, pink papule was seen. This was incised, and some iodoform insufflated. Prompt relief was obtained, and the pain did not recur.

Mr. MACLEOD YEARSLEY said these four cases reminded him very much of a case he had met with. The patient, a woman of fifty-four, complained of pain in the ear, and while under his observation she had three attacks of right facial neuralgia. He saw the case at each of the attacks, and they were accompanied by two or three vesicles on the lower part of the right membrane. These vesicles disappeared as the pain subsided.

Dr. FURNESS POTTER communicated a *Case of Appreciable Improvement resulting from Treatment by Pilocarpine Injections in Labyrinthine Deafness.*

The patient, a girl of thirteen, with signs of hereditary syphilis, and family history of same, stated "she had been deaf for some months, but had become suddenly worse during last two months." There had been discharge from both ears at various times.

On examination (December 31, 1903), hearing for watch was: right ear,  $\frac{1}{4}$  inch; left, slightly on contact. Low T.F. not heard on contact, but heard through air; Weber, + R.; Rinne, + both ears. Hearing for voice practically *nil*, conversation being impossible. The patient was given a course of daily subcutaneous injections of pilocarpine.

On January 23, 1904, hearing power for watch: right, 5—6 inches; left,  $2\frac{1}{2}$ —3 inches.

On January 25, there developed an attack of acute otitis media in both ears, during which deafness increased considerably. Pilocarpine injections were recommenced on February 9, with result that on February 25 patient could hear watch by right ear at 6—7 $\frac{1}{4}$  inches, by left at 3 inches. Hearing power for voice was regained, so that conversation could be engaged in when patient was spoken to distinctly and at close quarters. The improvement was maintained.

Mr. CHEATLE said there were various things he did not understand in the history of the patient, and he thought they ought to

be careful in accepting the conclusions arrived at. Middle ear trouble was mixed up with that of the internal ear. The fact that the watch could be heard and the voice not at all was rather curious. He thought more good would be done in recent cases of internal deafness due to congenital syphilis by repeated blistering than by injections of pilocarpine. The speaker then referred to a case of a child with recent internal ear deafness due to congenital syphilis, which he had seen at King's College Hospital five years ago. For a fortnight daily injections of pilocarpine were used with no result; repeated blistering was then applied, and in a fortnight the patient left the hospital, being quite comfortable. She came up again only the other day saying she was again getting deaf; blistering at once produced marked improvement.

Dr. P. McBRIDE thought Mr. Cheatle was too hard on pilocarpine, and was of the opinion that it was the best remedy they had for internal ear disease, although this was not saying much. Of course one could never be certain that if it had not been for the pilocarpine the patient would not have heard quite well. As to the question of the middle and internal ears, his impression was that most of these were cases where both the middle and internal ears were affected. He thought they ought to be very much obliged to Dr. Potter for bringing this case forward.

Dr. JOBSON HORNE said he was rather inclined to agree with the remarks of Mr. Cheatle. He thought there was more danger of over-stating than of under-stating the benefit derived from the pilocarpine in this case. He would like to hear from Dr. Potter what other remedies had been tried, either before or concurrently with pilocarpine.

Mr. LAKE said he was inclined to support the second speaker.

Dr. DUNDAS GRANT thought pilocarpine was of value in some cases, especially of the congestive form, but if there was any possibility of the patient being anæmic or at all run down it was the one drug of all others that should most carefully be abstained from. From time to time he had employed it, and the rule was for a slight improvement to take place, which disappeared, perhaps, at the end of a fortnight. Within the last few months he had, however, seen a case of a girl who most completely recovered. She developed almost sudden deafness in both ears, and had previously suffered from keratitis. A rash diagnosis of hereditary syphilis was made. Pilocarpine injections were ordered, and after the first she began to hear a little. After the second she could hear the voice, and after the third she could hear absolutely well. It was, of course, a mistaken diagnosis, for it was really a case of hysterical or simulated

deafness. Dr. Grant was inclined to believe that many of the reported recoveries under pilocarpine were in more or less merely functional cases.

Dr. PRITCHARD said the only cases in which he had known pilocarpine injections to be of any good were those of congenital syphilis. He remembered just a few cases that had improved under pilocarpine injections, but nothing like the number that had improved under blistering. If they could get hold of the cases moderately early a very fair proportion of them would be greatly improved by repeated blistering. He had found a large proportion of even bad cases of deafness from congenital syphilis very materially improved by early blistering. He believed here and there you might find a case that would be improved by pilocarpine, but personally he should always try blistering first.

Dr. POTTER, in replying, said Mr. Cheattle had thrown some doubt upon the efficacy of pilocarpine, but the improvement in the case given was noted so immediately in connection with the injection of pilocarpine that it seemed to him to be rather running away from the point to say that it was not due to it. With regard to Dr. Horne's question as to whether the patient had had any other treatment, he might say that a couple of months before the pilocarpine she had been treated with one-grain doses of grey powder (given thrice daily), which had produced no beneficial result. It seemed to him that he had reasonable grounds for assuming a diagnosis of labyrinthine disease, and as to the result of treatment he thought he was justified in supposing that the pilocarpine had something to do with that result. He brought the case forward because it was the only one in which he had found an appreciable result from the use of pilocarpine.

Dr. HUGH E. JONES exhibited a *Temporal Bone with abnormally small Antrum*.

The specimen was from a case of suppurative lepto-meningitis in which the mastoid was opened as a preliminary to further operation. The mastoid portion was wholly diploetic or sclerosed, the antrum extremely small, and its tegmen carious and perforated.

Dr. HERBERT TILLEY said he thought it possible that Dr. Jones had brought forward his specimen because he (the speaker) had raised the question as to the possibility of coming across a mastoid in which there was practically no antrum. He had met with a case in which at the complete mastoid operation he could find only a small blind depression corresponding to the usual position

of the aditus ad antrum, and he had thought it worth while to bring it forward. Dr. Jones's was a still more complete case and therefore he (the speaker) was more than ever inclined to maintain that it might be possible to meet with a case in which an antrum did not exist.

Mr. McBRIDE said these cases brought forward by Dr. Jones and Dr. Tilley interested him very much, because during this year he had operated on a patient in whom there was absolutely no antrum at all, and although it was a very interesting operation he should not like to perform it again. The patient complained of pains in the ear and sickness and vomiting, and the symptoms pointed to some intra-cranial complication. The special features were a very slow pulse and a rather low temperature. He opened the attic and to his amazement found the protector would not pass into the antrum. The patient at first did so well that further operation was delayed but suddenly got worse and died from respiratory failure before intra-cranial exploration could be performed. A large cerebellar abscess, great thickening of the tegmen tympani, and absence of the antrum were found on autopsy. The speaker expects to publish the case *in extenso* later.

Mr. ARTHUR CHEATLE exhibited *Temporal Bones showing some Fallacies of Macewen's Triangle as a Guide to the Antrum*.

Mr. CHEATLE showed eighteen adult temporal bones of various ages sectioned through the mastoid process and antrum, in which the latter was situated wholly or in greater part above the posterior zygomatic line.

He also showed an adult bone in which Macewen's triangle led straight into the middle fossa.

Dr. JOBSON HORNE showed *Preparations illustrating the Surgical and Morbid Anatomy of Labyrinthine Suppuration*.

The pathological preparations showed the extension of suppuration from the middle ear to the formation of an abscess sac at the site of the saccus endolymphaticus, and the anatomical demonstrated the path of exploration of the labyrinth from the radical mastoid operation.

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DEATH OF SIR PHILIP SMYLY.—Our readers will receive with great regret the news of the death of this able and amiable *confrère*. We shall offer homage to his memory in our next issue.



PROCEEDINGS OF THE BRITISH LARYNGOLOGICAL,  
RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

*Ordinary Meeting, held at 11, Chandos Street, Cavendish Square, W.,  
Friday, March 11, 1904.*

*The President, Mr. JOHN BARK, in the Chair.*

The PRESIDENT delivered his address, which will be found on page 231.

The following communications were made:—

Dr. W. H. KELSON showed a *Case of Paralysis of the Right Vocal Cord.*

The patient was a man aged fifty who for a year past had suffered from a difficulty in swallowing. A bougie was checked about twelve inches from the teeth. He had recently complained of pain in his right side. There were no signs of aneurism, nor any history of syphilis or tubercle. On examination the right vocal cord was seen to be almost motionless.

Mr. HAROLD BARWELL showed a *Case of Bilateral Abductor Paralysis, probably of Nuclear Origin.*

The paralysis of the abductors of the left cord was complete, and of the right cord almost complete. The internal tensors were not paralysed. There was no paralysis of lips, tongue, or palate. Slight ptosis of left eye; unequal and inactive pupils. Knee jerks active. No signs of thoracic tumour. Pulse rapid. Doubtful history of syphilis fourteen years ago.

Dr. PETER ABERCROMBIE read the following notes of a *Case of Caseous Rhinitis.*

H. W——, aged eighty-three years, a bootmaker, was sent by Dr. F. J. Barker, with a history of having spat out of his mouth on February 8 last, a large putty-like foul-smelling mass, which was felt to come into the throat and mouth from the back of the left side of the nose.

The specimen was handed to Dr. Wingrave, who made a very thorough examination of it, and whose report was read. It appeared to consist of pus which had undergone fatty degeneration; it was swarming with micro-organisms, and contained no epithelial elements and no cholestrin.

In December of last year the patient had "influenza and bron-

chitis," and this was followed by headache, a bad smell in the left side of the nose, and a great pain referred to a point just above and to the outer side of the left orbit. This pain continued for three or four days with increasing severity until it became almost unbearable; then, quite suddenly, he got relief, with a feeling of "something having given way in the head" and of discharge into the back of the throat.

Before this attack he had had no nasal symptoms at all.

A week later he experienced a similar attack of pain in the same situation as the first, but not so severe; and this ended by the spitting out of the large putty-like mass above referred to.

Since then he had been quite free from symptoms of any kind.

When Dr. Abercrombie examined him on February 24 last, beyond a septal deviation to the right side, and some hypertrophy of the left inferior and middle turbinals, there was nothing abnormal to be seen in the nose. There was no pus in either nasal fossa, and no polypi were to be seen.

Transillumination showed both maxillary antra perfectly clear and symmetrical; the right frontal sinus was also clear, but the left quite dark. There were no teeth or stumps in the left upper jaw.

The previous history of the patient was exceptionally good. He came of a long-lived stock, and there was no tubercular history in his family.

Probably this was a case of acute suppurative sinusitis (? left frontal or sphenoidal) of influenzal origin where the pus had been retained and had caseated. The term "cholesteatomatous," sometimes given to these cases, would not be applicable here, as no epithelial structures were found, and there was no capsule present.

Dr. Abercrombie reminded the Meeting that the President read a very instructive paper on this rare affection, with notes of a case, at the meeting of this Association on November 13 last.

Dr. Wingrave kindly exhibited a microscopical slide of the caseous material, and also some of the putty-like matter in bulk.

The following is Dr. Wingrave's report:—

Caseous matter received from Dr. P. H. Abercrombie February 11, 1904.

*Physical characters.*—An irregularly-shaped mass 3 by 2 cm. in size. Weight 120 grammes. Consistence somewhat like German yeast or Roquefort cheese. Colour of pale butter. Odour foetid, like decomposed cheese.

*Composition.*—Water 40 per cent., solids 60 per cent. *Solids:* *Fatty matter* soluble in ether, chloroform, alcohol, xylol. *Proteids*

soluble in water (very little serum albumen), in neutral 2 per cent. solution of sulphate of soda = globulin; and 1 per cent. solution of carbonate of soda = nuclein, keratin, mucin.

*Microscopic examination.*—Long feathery crystals of fatty acids soluble in ether, etc. A few large yellow spheres soluble in ether, xylol, etc. Minute amorphous granules, some soluble in ether, others in liquor potassæ or sodium carbonate and staining with osmic acid. Chromatin granules stained with basic dyes.

*Bacteria.*—Fusiform bacilli 8 to 12  $\mu$  (Vincent's ?). *Bacill. prot. vulgaris*; *Streptothrix alba* (?); *Diplococci*; a few yeasts. *N.B.* It was swarming with bacteria. Entire absence of organised cell elements. Cholesterin could neither be seen in crystals nor extracted in ether, alcohol, or chloroform. No acid or alcohol fast bacilli. Odour slightly fœtid.

*Remarks.*—The above conditions are perfectly consistent with fatty changes occurring in old pus. Had it originated in epithelial cells there would doubtless have been evidence of squames and cholesterin. Nothing afforded evidence of its anatomical source. There was no capsule.

WYATT WINGRAVE.

Dr. FREDERICK SPICER showed a *Case for Diagnosis*.

J. W. J. R —, aged twenty-six years, a post office sorter, living in London, complained of loss of voice, coming on gradually for the last six months and getting worse. There was neither a tubercular nor a syphilitic history. On examination: tumour in the larynx.

For the last three weeks large doses of iodide of potassium had been given, and the patient considered he was improving, but there was not much alteration in the appearance of the growth.

Dr. R. H. WOODS said that he had seen a similar case, but there was more polypoid enlargement and pus was present. On examination of the sputum tubercle bacilli were also found.

Dr. MAYO COLLIER suggested that the case was probably syphilitic, although the redness and congestion too were greater than usual in that condition. He advised examination of the sputum.

Dr. DUNDAS GRANT showed a *Case of Acute Laryngitis following Influenza*.

The patient, A. F —, was a young man aged seventeen years, who complained of loss of voice of one week's duration. It came on suddenly with a cold. The patient was in good health previously.

On examination there was a white patch covering the anterior third of each vocal cord, and a pink discoloration of the rest of the vocal cords, viz: the posterior two-thirds. Dr. Dundas

Grant remarked that these acute cases were rarely seen or brought to the meetings, but chronic cases were common, and therefore he had brought this case forward. The condition would probably get well with complete rest.

Mr. MAYO COLLIER showed a *Case of Chronic Osteo-myelitis with old Ulceration of the Palate.*

He remarked that there was the notable fact that although the condition had existed for eighteen years and had been under treatment in various hospitals it had not been diagnosed. There was an absence of the usual signs of congenital syphilis.

Mr. CHICHELE NOURSE said that there was some haziness of the corneæ, and that he had no doubt the case was one of congenital syphilis.

Mr. KELSON considered that the eyes gave evidence of inherited syphilis, the corneæ being nebulous. Probably the eyes were affected at an early age.

Dr. D. VINRACE said that the teeth also bore evidence of congenital syphilis.

Dr. R. H. Woods showed a *Skiagram of an Antrum (maxillary).*

Six months ago he opened the antrum for recurrent suppuration and removed a small piece of indiarubber drainage tube that had been allowed to slip into the antrum after operation eight years before.

Dr. Woods also showed an *Artificial Denture removed from the Gullet of a Lady Patient some months before.*

The patient could swallow liquids and soft food well, and being in advanced pregnancy it was allowed to remain in the œsophagus for four months. The denture could be easily felt just below the cricoid cartilage. There was found to be a fistula from the gullet to the trachea. Œsophagotomy was performed and the denture removed, and the question now was how to treat the case, as the fistula still existed.

Dr. DUNDAS GRANT said that he had had no personal experience of such a case, but thought that a large tracheal incision would be a good plan to reach the fistula. A case of fistula had been reported from Hamburg, where a tracheotomy tube—a Hahn's sponge canula—with a jacket on it of thin indiarubber, had been introduced and worn for a year, in which the feeding could be done in comfort.



The PRESIDENT said that the case was a very interesting one, and he had never seen any case like it.

Dr. WYATT WINGRAVE showed *Microscopic Specimens illustrating recent Histological Investigations respecting Malignant Growths*.

Dr. WINGRAVE said that two forms of cancer parasites were here shown—parasites free and parasites encapsuled—and explained that such were found by him not only in malignant growths but in innocent tumours and in lupus, adenoids, etc.

Dr. ST. GEORGE REID exhibited an *Automatic Sounding Box for Measuring the Auditory Appreciation in Deafness and other forms of Ear Disease*.

A small audiometer for testing the auditory appreciation in deafness and ear disease. Up to the present the method of testing by striking a tuning-fork has been inefficient, and for reference or further testing useless. The important points in this instrument are: (1) the force starting the fork is constant both for one and for every fork, therefore there is never variation in volume in the same fork; (2) the individual fork is constant for one and the same patient, and for every other patient at any time, therefore the record is a valuable reference in a patient's history or for comparison, and as noting the value of any medical or surgical treatment or appliance; (3) the fork is heard by the patient and operator at the same time, and it is heard under the same condition. After some experiments it had been found advisable to keep the box at this size for either one, two, three, or four forks, considering the question of vibration. For whilst, on the one hand, it is not desired to unduly lengthen the period of vibration, on the other hand, one does not want to diminish it too much. The forks can be chosen by the surgeon, the C fork being the usual one supplied. The terminals are of glass, which can be removed after each patient and dropped into an antiseptic solution, and replaced by fresh ones. The instrument is a valuable assistant to the operator, should he be suffering from temporary deafness due to catarrh, as the volume of the fork never alters, and the normal period of appreciation being known, his subjective condition does not prevent the correct determination of the patient's time of audition. There is no objection to variation in the length of the tubes.

Dr. DENNIS VINRACE asked if this instrument would assist in any way in calculating the percentage of hearing power.

Dr. HEMINGTON PEGLER wished to know how the sound of the

over-tones was to be got rid of, and if a whole range of tuning-forks could be used in the new instrument.

Dr. W. D. HASLAM asked how air and bone conduction were to be defined and distinguished.

Dr. DUNDAS GRANT thought this a most elegant device, and that it would prove useful especially in recording the progress of an ear case. He had used the stop-watch for many years in his practice. The calculation of percentages of hearing power was most difficult, and neither this nor the elimination of over-tones could be accomplished with this audiometer. He thought the hammer might be improved.

Dr. WOODS said that the new audiometer was very interesting, and asked if it could be used to test bone conduction.

Dr. HAROLD BARWELL considered that the spring would get gradually weaker from constant use.

Dr. WOODS wished to say that unless much over-stretched the spring would not weaken—a watch spring for instance did not do so.

Dr. FREDERICK SPICER said he thought that the audiometer was full of fallacies, as it transmitted a mixture of bone and air conduction.

Dr. ST. GEORGE REID, in reply, said that there was no bone conduction whatever in using his audiometer. The spring had not been found to appreciably lessen in strength. Over-tones were not of any importance as they were constant, being always started with the same force and in the same manner; this was the great feature of the audiometer—constant tone, the force being always the same. It was of great interest and utility to note how a patient improved under treatment by this record.

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## Abstracts.

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### NOSE AND NASO-PHARYNX.

Gerassimow (Moscow).—*Primary Nasal Diphtheritic Infection in Children.* "Russki Wratach," November 16, 1903.

This article is based on an observation of ninety cases of the nasal disease in children which has been named fibrinous or croupous (pseudo-membranous) rhinitis. In some of the cases the nasal mucous membrane was only swollen and ulcerated. In seventy-eight cases Loeffler's bacillus was found; in the other twelve cases the bacillus was found in the dry

preparations. The treatment was for the most part local; in the few cases in which serum was injected the disease ran a shorter course.

Most of the cases were mild; in eleven, however, the diphtheria extended to other parts (pharynx, eye, wound surface). Most of the children were between four and six years of age. Six of the cases were complicated with measles and all were severe and succumbed. The others recovered. Scarlet fever and nasal diphtheria do not seem to have any relationship.

Gerassimow draws the following conclusions:—

1. There are two types of nasal diphtheria (a) catarrhal, (b) membranous.

2. The disease is acute or sub-acute and runs a good course when limited to the nasal cavity.

3. Every cold in the head of a hidden character should be examined bacteriologically.

4. All cases should be isolated and treated as cases of ordinary diphtheria.

A. Westerman.

**Jürgens.**—*A Fatal Case of Ozæna.* "St. Petersburger Medicinische Wochenschrift," February, 1904.

When first seen the patient was unconscious; pulse 120, breathing 30. Temperature 39.5° C. He died the same evening.

*Post-mortem* there was found a purulent leptomeningitis; acute empyema of frontal sinus; chronic ulcerative ozæna; chronic pharyngitis, etc. The basal meningitis was evidently secondary to the suppuration in the ethmoidal cells which had been infected from the ulcerated nasal mucous membrane.

A. Westerman.

**Ziem, C. (Dantzig).**—*Iritis and Nasal Disease.* "Archives Internationales de Laryngologie," etc., November—December, 1903.

The author records three cases in which the patient was suffering from iritis, associated with nasal lesions. In spite of the usual treatment there was no amelioration of the eye condition until the nose was attended to. In one case the maxillary sinus was involved and cured by the extraction of a carious tooth, in another the treatment of a deviated septum with hypertrophy of the inferior turbinate was followed by a great improvement in the eye condition.

Anthony McCall.

**Thost (Hamburg).**—*The Clinical Symptoms of Hay Fever and their Treatment.* "Münch. med. Woch.," June 23, 1903.

He considers the results reported in forty-seven cases with Dunbars antitoxin. There were absolutely favourable results in twenty-seven, partial or temporary benefit in twelve, negative effect in eight. The toxin was of value for diagnostic purposes. The analysis of 400 published cases reveals a probable association with the recent epidemics of influenza. In the way of treatment he recommends first general hygiene and hardening, then local treatment of the nose, which should be finished before the hay-fever season commences. The treatment of the upper segments of the nasal passages is important. To prevent infection the nose may be plugged; handkerchiefs and shirts should be dried in shut-up rooms [not in grass fields—D. G.]. Patients should avoid travelling in districts where they are likely to be re-infected. Antitoxin, to produce

an effect, must be introduced three or four times a day into the eyes and nose, and must be brought into contact with the higher parts of the latter. The powdered form of the remedy has not yielded good results in Thost's hands.

Dundas Grant.

**Knosp.**—*The Operation for Adenoid Vegetations.* "Medicinisches Correspondenz Blatt," March 5, 1904.

Knosp prefers to do the operation with the help of two experienced assistants, and not to use a general anæsthetic, he also never uses cocaine or cocaine and adrenalin. The best instrument for the beginner is Gottstein's ring knife, and all cases ought to be thoroughly examined before operation so as to be sure of the exact position and extent of the growth. Schütze's compressor of sterile iodoform gauze ought always to be in readiness so as to have some control should the hæmorrhage be exceptionally great.

Continuous bleeding after operation is usually due either to an incomplete removal of the growths or to excessive excitement in nervous children.

A. Westerman.

## LARYNX AND TRACHEA.

**Botella y Donoso Cortes** (Madrid).—*Acute Oedematous Rhino-pharyngolaryngitis.* "Revista Especialidades Med.," Madrid, February, 1904.

The author refers to the cases of Courtade (*Archiv. Internat. Lar. Ot. y Rin.*, November and December, 1903), and of Griffith (*Brit. Med. Journ.*, June 14, 1902), as showing that the affection is probably due to a hereditary neurosis, and that it is allied to hay asthma. Persons so affected are real examples of *noli me tangere*, as even a slight injury or operation about the mouth or face may be followed by grave oedema or even death. The cases have therefore a medico-legal as well as a clinical interest. The case of a young lady is described. She suffered from intra-nasal hypertrophies and attacks of acute coryza, with facial and palpebral oedema. Her last attack was attended with grave nasal, pharyngeal, and laryngeal oedema, and inspiratory dyspnoea. The symptoms yielded to the application of a solution of cocaine and adrenalin, and the author thinks that the oedema in Courtade's cases must have been very urgent to have required tracheotomy. The nasal hypertrophy was subsequently reduced by the galvano-cautery, without, however, any return of the symptoms, and the patient has remained free from attacks up to the time of writing (a month).

James Donelan.

**Grünwald, L.** (Munich).—*The Galvano-cautery in the Form of Puncture in the Treatment of Tuberculosis of the Larynx.* "Münch. med. Woch.," June 23, 1903.

With the view of attacking the deep infiltration without at the same time damaging the mucous covering to a serious extent, Grünwald recommends puncturing by means of the galvano-cautery. He states that the operator can tell by the sense of feeling when the point has passed through the pathological infiltration and arrived at the normal tissue. He finds the reaction extremely slight and the shrinking of the infiltration very satisfactory.

Dundas Grant.



**Frese** (Halle a/S.).—*The Relation between Laryngeal and Pulmonary Tuberculosis.* "Münch. med. Woch.," March 29, 1904.

Out of 415 patients with pulmonary tuberculosis, 93, or 23.5 per cent. had laryngeal involvement, and most particularly those in the fourth decade of life. It was rare in children, and contrary to the usual statement was relatively more frequent in women than men (26 as against 21 per cent.). Is the infection of the larynx through the sputum or the blood and lymph-channels? Krieg and others say the latter, because the bacillus is often found (as Heinze's well-known investigations showed plainly.—D. G.) under intact epithelium, and because the larynx is most affected on the side corresponding to the most affected lung. In reality the bacillus can readily penetrate intact epithelium, and Frese found actually that in his cases of marked unilateral preponderance two only were on corresponding sides, three were on the crossed ones. The author was able to produce tuberculosis of the larynx in a dog by rubbing in tuberculous sputum after mechanical irritation of the mucous membrane. The infiltration developed under intact epithelium. With the exception of cases of general miliary tuberculosis, infection of the larynx is probably sputogenic and not hæmo- or lympho-genic. The tendency of the vocal cords to infection results from their irritation through coughing and speaking. Ulcers of other kinds, as syphilitic, are liable to tuberculous infection. Why the larynx is often unaffected is unexplained.

Tuberculosis of larynx, especially when affecting the epiglottis or arytenoids, has a particularly fatal influence on the lung-disease on account of the impairment of nutrition resulting from the pain in swallowing. The danger of inspiration of portions of tuberculous ulcers is probably theoretical, but curettage of the larynx is very likely to set free such portions. The pulmonary tuberculosis makes the laryngeal disease worse through the fever to which it gives rise, and the want of rest of the larynx occasioned by the cough. The prognosis depends mainly on the state of lungs.

*Dundas Grant.*

**Dickinson, E. T.**—*The Advantages in the Methods of Administration of Antitoxine and Intubation.* "Charlotte Medical Journal," February, 1904.

The three greatest dangers relate to the imaginary difficulty and delay of early intubation, the administration of too small amount of antitoxine, and the unnecessarily prolonged wearing of the tube. If the serum is given in sufficiently large initial doses, and frequently repeated until the membrane almost disappears, the retention of the tube longer than a day or two will be unnecessary in most of the cases. The author draws attention to the difference in dosage given by authorities between 1897 and 1902, and insists upon the advantages of large doses.

*Macleod Yearsley.*

**Bodmer.**—*Removal of a Foreign Body from the Right Bronchus with the aid of Killian's Bronchoscope.* "Correspondenz Blatt f. Schweizer Aertze," March 15, 1904.

According to C. v. Eicken in an article in the thirty-fourth volume of "Beiträge zur klinischen Chirurgie," there were ten cases of the above operation recorded to the end of 1902.

During the year 1903 the number doubled itself. This fact is valuable proof of the value of Killian's method.

In Bodmer's case, a boy of eleven years of age had, while playing, sucked a needle through a tube with such force that it was drawn through the larynx into the trachea. The X-rays showed the position of the needle distinctly. It appeared to be 3 cm. long and to lie over the backbone at the level of 3-5 ribs, and it was difficult to determine whether the needle was in the œsophagus or bronchus. Cocaine having been used, "upper bronchoscopy" was first done, and as nothing was seen in the trachea chloroform was given and a low tracheotomy done. From the tracheal opening the lower part of the trachea was illuminated by Caspar's hand lamp and the bronchoscope used, but without success.

Because of the narcosis the operation was not proceeded with till the next morning, when by again introducing the bronchoscope through the opening in the trachea, which did not require a general anæsthetic, the foreign body was detected in the under part of the right bronchus, and was removed by Killian's long hook. The patient recovered rapidly.

A. Westerman.

## ŒSOPHAGUS.

Silver, Lewis M.—*Foreign Body in the Œsophagus*. "Archives of Pediatrics," March, 1904.

The case of a male child, twenty months old, who swallowed a cent. The coin was located by the X-rays and easily removed with a coin-catcher. The author also quotes a case of a child, aged eighteen months, who swallowed a scarf-pin. The body was seen by the X-rays in the rectum twenty-four hours later.

Macleod Yearsley.

## EAR.

Spira.—*Eye and Ear: their Similarity and Mutual Relationship*. "Wiener kl. Rundschau," January 17, 24, 31, February 14, 21, 1904.

Spira divides his subject into two parts. In the first he deals with the similarity between the eye and the ear, in the second with their closer relationship and mutual influence.

The first part is discussed under three heads—(a) morphological and anatomical, (b) physiological, (c) clinical.

(a) Both the eye and the ear are derived from the same embryological structure—ectoderm—and in their later development there are many similarities—retina and ductus cochlearis with the organ of Corti; nasolachrymal duct with Eustachian tube; the accessory sinuses, frontal, ethmoid, etc., with the mastoid, antrum, and cells. Topographically the nasal cavity is common to both, and may be the seat of reflexes from both the eye and the ear, as also a means of their common infection. There is also a close relationship in the innervation of these two organs of special sense both in and out of the brain. The internal carotid supplies both structures with blood; the jugular vein, by way of the lateral sinus, drains them.

(b) Spira considers the relationship between the waves of light and the waves of sound—the ciliary muscle with the tensor tympani and stapedius muscles.

(c) In comparing the eye and ear from a clinical standpoint one must

consider (1) the similarity of the pathological process and clinical symptoms; (2) the onset simultaneously of diseased conditions in both organs.

Under (1) comes the diseases of the eyelids and external ear; the diseases of the conjunctival sacs, naso-lachrymal duct, and accessory sinuses (frontal, sphenoidal, etc.) on the one hand, and of the middle ear, Eustachian tube, and mastoid cells on the other. Many other examples are given.

(2) The simultaneous occurrence of pathological changes in the eye and the ear has either a common aetiology, or has its origin in an extension of a diseased condition of the one to the other. Common causes may be (a) local, such as diseases of the nose, face, or cranium; (b) general; (c) a special affection of some organ of the body; (d) anomalies of development. Spira takes up and discusses each of these heads separately.

Amongst local causes he refers to disease of the nasal sinuses, adenoids, etc.; to facial erysipelas, lupus urticaria; emphysema of the eyelids following the use of the Eustachian catheter; meningitis; disease of the fifth and seventh cranial nerves; fractures of the skull.

Under general causes are included (1) mental affections—hallucinations of seeing and hearing, neurasthenia, and hysteria, etc.; (2) infectious diseases—diphtheria, syphilis, scarlet fever; (3) alterations in the composition of the blood, disturbances of metabolism and intoxications; the various forms of anæmia; gout; nicotine and salicylic acid poisoning.

(c) includes such diseases as dental caries, diseases of the gastrointestinal tract, of the circulatory and urinary systems.

Passing to the second part of his subject, a consideration of the nearer relationship between different conditions of the two organs, Spira states that in a number of cases, directly or indirectly, diseases of the ear are followed by the like in the eye, and *vice versâ*. In other cases irritative conditions and diseased processes of the one organ call forth in a reflex manner pathological changes and conditions in the other.

One group includes cases of facial palsy, following on middle-ear disease, with resulting paralysis of the orbicularis oculi and inability to close the eyelids. The so-called "*otic*" pyæmia may cause (1) retinal changes, (2) suppuration and retro-bulbar adipose tissue, (3) cramp or paralysis of the eye muscles, (4) circulatory disturbances in the veins of the eye—exophthalmos, œdema, etc.

The pathology of these changes is not yet clear, some holding them to be due to increase in the intra-cranial pressure, others to the presence of substances in the cerebro-spinal fluid, which penetrates to the optic nerve by the lymph-channels. On the other hand, an extension directly or indirectly of an affection of the eye to the ear is not often observed.

Another group includes such abnormal changes and appearances of a reflex character as can be either of a (1) special sense, (2) motor, (3) sensory, (4) trophic, or (5) vaso-motor nature. 1 and 2 are discussed at some length. The influence of the one organ of special sense on the other, considered from a neuro-pathological standpoint, has had a good deal of attention lately (Steinbrügge, Urbantschitsch, and others).

In conclusion Spira makes an appeal for more attention to be paid to the relationship between the eye and ear, not only by general practitioners, but also by specialists in otology and ophthalmology, who ought never to miss an opportunity of examining and investigating such cases.

There is an excellent list given of the literature on this subject up to the present date.

A. Westerman.



**Okouneff, Basile** (St. Petersburg).—*Involuntary Movements of the Head showing an Isolated Affection of one of the Semi-circular Canals in Man.* "Archives Internationales de Laryngologie," March—April, 1904.

The author points out that for many years experiments on birds and animals have shown that if the superior semi-circular canal is opened, the subject involuntarily turns its head to one side.

Drawing his conclusions from this, Dr. Okouneff quotes two cases (men) in which involuntary movements of the head, forward, and from left to right, were strong indications of a lesion of the semi-circular canal. In both cases the labyrinth was involved, the patients had a peculiar way of holding the head, there was no squint, and on looking fixedly at the doctor's finger the patient became giddy and fell forward towards the healthy side. In one case the movements were confined to the head, in the second the body also was affected. The oscillations of the head were worse when the patient (first case) was sitting, and the hands could not be kept still. When the mastoid disease became more acute the number of oscillations was augmented, and the turn of the head more pronounced.

Applications of leeches and blisters behind the ear resulted in cure in the first case, and ameliorated the second, the final result of the latter being unknown, as the patient, a soldier, rejoined his regiment.

Anthony McCall.

## THERAPEUTIC PREPARATIONS AND INSTRUMENTS.

### An Inspiratory Nasal Irrigator, by DR. DUNDAS GRANT.



The central idea in this simple apparatus is the more effective employment of the action of "snuffing" in the irrigation of the nasal passages. The apparatus consists of a cylindrical glass receptacle—a neckless bottle—of about 2 oz. in capacity, fitted with a cork bung, through which pass two tubes, one of which reaches to the bottom of the receptacle, the other for a very short distance below the cork. The long tube has at its upper extremity a flattened bulbous expansion adapted to fit the nostril. The mode of employing the irrigator is extremely simple. It is filled with the necessary liquid, and held in the hand of the side on which it is to be used. The bulbous tip is placed in the nostril, and the *alæ nasi* of both sides are compressed by means of the thumb and fingers of the opposite hand. The patient then, by a vigorous snuffing action, draws the liquid up his nose into the naso-pharynx. The instrument ought to be removed from the nose while the fluid in the naso-pharynx is hawked and spat out through the mouth. The advantages claimed for this irrigator are that the action of the *vis a fronte* reduces the risk of invasion of the Eustachian tubes, and the stream is drawn upwards as well as backwards, and thereby reaches the middle turbinal and middle meatus, while at the same time the forcible inspiration forms a gymnastic exercise for the breathing mechanism which in many cases is of great value. It need hardly be said that in cases of very special weakness the inspiratory effort required may contra-indicate its use, but, with the exercise of ordinary caution, it will be found a safe and



effective detergent apparatus. It has been made by Messrs. Rouse, of Wigmore Street.

### Spray for Hay Fever, etc.

We have received from Mr. FRANK A. ROGERS, 327, OXFORD STREET, W., one of his Miniature No. 1 Sprays, which is a most useful and compact little instrument, and especially economical in the use of such solutions as adrenalin chloride, cocaine, etc. A particularly advantageous method of prescribing "adrenalin" in hay fever is to order the patient, say, about 2 drams of liquid adrenalin chloride (Takamine) 1-1000, either with or without cocaine, with instructions to add about 5 drops to the contents of enough cold boiled water to fill the small bulb of a Rogers' Miniature No. 1 Spray, and use this whenever required.

### Borobenphene-Heil and Glycobenphene-Heil.

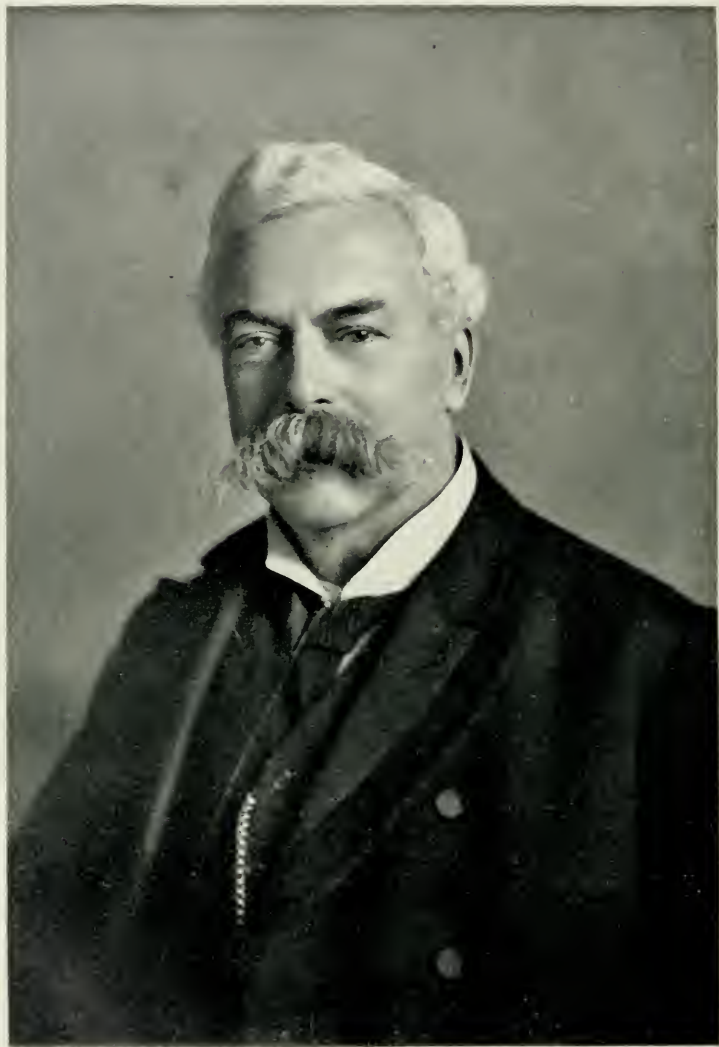
We have received samples of these preparations from the Henry Heil Chemical Co. Borobenphene-Heil has the antiseptic properties of boracic acid, benzoic acid sublimed from Siamese gum benzoin, phenol and glycerine, all in the stage of highest purity, and is prepared by a special process, by which a uniform preparation is produced, which does not coagulate albumen, and which mixes in all proportions with water, glycerine, and alcohol. It is for external and internal use. Dose internally: For adults, 15 to 60 drops three times a day in a wineglassful of water; for children the dose is proportionately smaller.

Glycobenphene-Heil has virtually the same properties as Borobenphene-Heil, the proportion of the constituents being somewhat changed, and it contains absolutely pure oxide of zinc. It is for external use only; and, being a mixture and not a solution, it should always be shaken before applying it.

Messrs. Burroughs, Wellcome, & Co. have added "Tabloid" Hydrarg. Perchlor. gr.  $\frac{1}{32}$  et Potassii Iodidi gr.  $2\frac{1}{2}$  to the list of their well-known "Tabloids."

In cases requiring treatment by mercury perchloride and potassium iodide it is usually necessary to continue the administration of the combination with regularity for some time. "Tabloid" Hydrarg. Perchlor. gr.  $\frac{1}{32}$  et Potassii Iodidi gr.  $2\frac{1}{2}$  has been recently introduced to provide a trustworthy means of carrying out the treatment when small doses are required. When larger doses are necessary, "Tabloid" Hydrarg. Perchlor. gr.  $\frac{1}{16}$  et Potassii Iodidi gr. 5, which has been issued for some time past, may be prescribed. The assured therapeutic activity and the absolute accuracy of dosage of the "Tabloid" products render them the most reliable and convenient means of prescribing these drugs. "Tabloid" Hydrarg. Perchlor. gr.  $\frac{1}{32}$  et Potassii Iodidi gr.  $2\frac{1}{2}$  is issued in bottles containing 100.





*Elliott & Fry.*

THE LATE SIR PHILIP CRAMPTON SMYLY, M.D., DUB.

THE  
JOURNAL OF LARYNGOLOGY,  
RHINOLOGY, AND OTOTOLOGY.

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### OBITUARY NOTICES.

SIR PHILIP CRAMPTON SMYLY, M.D.D.C.B.

THE sudden death of Sir Philip Smyly, which took place recently at his residence, Merrion Square, Dublin, has caused deep and widespread regret.

The Journal of last month was in the press when the unexpected announcement reached us, and it was then only possible briefly to record the sad occurrence. Since then the various medical periodicals and the press generally have referred in feeling terms to the great loss which the country has sustained by Sir Philip's death, and have made the public familiar with many interesting details regarding his useful and instructive life as well as with the circumstances surrounding his unlooked-for end.

For some time previously the health of the distinguished surgeon had been unsatisfactory, causing grave anxiety to his family and friends, but of late he seemed to be recovering much of his accustomed health and spirits. Quite unexpectedly the rupture of a cerebral blood vessel brought to a close a life full of usefulness to his fellow men, and one which will always afford a bright example to those who strive to follow in his footsteps.

Sir Philip was born in 1838; graduated from Trinity College, Dublin, with a moderatorship and silver medal in experimental science in 1859; and at various times filled the posts of Surgeon to the Meath Hospital, Consulting Surgeon to the Dublin Hospital for Diseases of the Throat, Nose, and Ear, and other similar institu-



tions. He became from time to time President of the Royal College of Surgeons of Ireland, President of the British Laryngological Association, Vice-President of the Laryngological Section at the Annual Meeting of the British Medical Association in London, President of the Irish Schools and Graduates Association, and was for several years a member of the General Medical Council.

For forty years he was attached to the Vice-Regal Staff in Dublin. In 1902 he received the honour of knighthood, and in the following year was appointed Surgeon in Ordinary to the Queen in Ireland. Subsequently, on the accession of King Edward, he was appointed Hon. Surgeon to His Majesty.

Sir Philip Smyly possessed intellectual qualities of a high order, and for many years occupied a prominent position in the profession which he did so much to advance and to elevate, as well as in the social world of Dublin.

His gifts were many and varied, and he was keenly devoted to his professional work in all its branches. He was a skilful and successful operator in several departments of general surgery. In particular the success of his abdominal sections some twenty-five years ago did much to enhance his reputation as an operating surgeon. Of late years he devoted himself largely to the study of throat affections, and it is probably as a throat specialist that his name is most widely known.

He was one of the founders of the British Laryngological Association, which owed its inception to a movement inaugurated in Dublin during the annual meeting of the British Medical Association in that city in the year 1887. In the formation of this, the first "special" society established in the United Kingdom for the study of diseases of the throat and kindred affections, Sir Philip took a prominent part and succeeded Sir Morell Mackenzie as President of the Association for 1889-90. Smyly's life was essentially a "full" one, and at one time or another he filled most of the positions of honour to which it was possible for his professional brethren to elect him. His practice was large and lucrative. He never had time to speak or write much on scientific subjects, and he never attempted to establish a reputation as a great teacher of scientific work. Nevertheless he never failed to place the highest ideals before his pupils, and his own work afforded an example of all that a successful student should attempt to realise.

Sir Philip's personal character and high standard of professional honour, quite as much, perhaps, as his intellectual attainments, contributed largely towards the establishment and recognition of

diseases of the throat as a special branch of scientific study and practice at a time when for many reasons so-called "specialism" was regarded with a certain amount of disfavour—not to say suspicion—by a considerable number of members of the medical profession.

His name will live always in the annals of Laryngology, not only as the skilful diagnostician and the successful operator, but as the courteous and accomplished gentleman whose kindness of heart many have experienced and whose personal charm none who have known him will ever forget.

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#### DR. CAMILLE MIOT, OF PARIS.

By the death of Dr. Camille Miot the world of laryngology in Paris has lost a distinguished representative. He was born at Moulins-Engilbert on July 17, 1838, and he died on April 1 of the present year. Many who have visited Paris at the times of the Medical Congresses will have enjoyed the elegant hospitality dispensed by himself and Madame Miot. He was a man of strong opinions, and appears to have made his way in the medical world entirely by his own exertions. He added very considerably to the literature of otology, of which there was very little in existence when he entered upon its study. He is most identified with the operation of mobilisation of the stapes, which he practised and advocated with the strongest convictions as to its value. With the collaboration of his pupil, Dr. Baratoux, he published a portion of what was intended to be a complete treatise on diseases of the ear, but stopped short before the publication of the final volume. His portrait, presented with this issue of the JOURNAL OF LARYNGOLOGY, will recall his features to those who have had the good fortune to meet him, and who will hear of his death with the greatest regret.

The appended list of his works will show the wide extent of his contributions during the last thirty-six years :

"Mémoire sur le Tympan Artificiel à la Société Médical du Panthéon," Mai 30, 1868.

"De l'Inflammation aiguë de la Caisse du Tympan," 1 Août, 1868.

"Du Speculum Pneumatique considéré au point de vue du diagnostic, et du Traitement des Maladies de l'Oreille," 2 Janvier, 1869.

"Des Corps Étrangers dans l'Oreille," Mouvement Médical, 1868.

"Des Retrécissements du Conduit Auditif Externe," *Gazette des Hôpitaux*, 1871.

"Traité Pratique des Maladies de l'Oreille ou Leçons Cliniques," Paris, 1871.

"De la Myringodectomie," *Progrès Médical*, 1878.

"Ténotomie du Muscle Tenseur du Tympan," *Progrès Médical*, 1878 in 8, 1878 (Delahaye).

"De la Rhinorrhagie chez les herpétiques et les Buveurs," *Abeille Médicale*, 1881.

"Considérations Anatomiques et Physiologiques sur la Trompe d'Eustache avec le Dr. Baratoux," *Progrès Médical*, 1881 in 8 (Delahaye).

"Traité Théorique et Pratique des Maladies de l'Oreille et du Nez, avec le Dr. Baratoux," 1<sup>e</sup> fascicule, 1884, Paris (Delahaye); 2<sup>e</sup> fascicule, 1888.

"Réflexions sur l'Obstruction de la Trompe d'Eustache chez un Diabétique:" "Des Pressions Centripètes et Centrifuges sur la Membrane du Tympan au point de vue du Diagnostic et du Traitement," Société Française d'Otologie et de Laryngologie, Avril, 1887; *Revue Mensuelle de Laryngologie, d'Otologie, et de Rhinologie*, No. 7, 1887, Juin 8, 1887. Paris (Doin).

"De l'Obstruction des Fosses Nasales Consécutive à l'Hypertrophie Quadrangulaire de la Cloison," Société Française d'Otologie, de Laryngologie, Avril, 1888; *Revue Mensuelle des Laryngologie, d'Otologie, et de Rhinologie*, Nos. 5 et 6, 1888, Juin 8, 1888 (Doin).

1890—"De la Mobilisation de l'Étrier" (lu en Grande Partie au Congrès d'Otologie et de Laryngologie de Paris en Septembre, 1889); *Revue de Laryngologie, d'Otologie, et de Rhinologie*, Nos. 2, 3, 4, et 5 (Doin).

1891—"De l'Extraction du Tympan et d'une Partie de la Chaîne des Osselets dans l'Otite Moyenne Sèche," extrait de la *Revue de Laryngologie, d'Otologie, et de Rhinologie*, 1891 (Doin).

1894—"Epistaxis Grave," "De la Mobilisation de l'Étrier" (communications faites à la Société Française de Laryngologie, d'Otologie, et de Rhinologie, Congrès de 1894); tirage à part de la *Revue de Laryngologie, d'Otologie, et de Rhinologie*, No. 11, 1894 (Doin).

1897—"Corps Étranger dans le Sinus Maxillaire" (extrait de la *Revue Générale de Clinique et de Thérapeutique*), *Journal des Praticiens*.

"De la Guérison des Perforations Tympaniques par l'Acide Trichloracétique" (extrait des "Bulletin et Mémoires de la Sté. Française d'Otologie, de Laryngologie, et de Rhinologie"), Congrès de 1898.

1898—"Un Cas de Rhinolith" ("Bulletin et Mémoires de la Sté. Française d'Otologie, de Laryngologie, et de Rhinologie"), Congrès de 1898.

## EDITORIAL.

### THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM AT GLASGOW.

THE extra-metropolitan meetings of this Society have in every instance been highly successful, and the latest one, which was held at Glasgow on May 21, was no exception to the rule. The Society has eminently justified its title as "of the United Kingdom." A number of prominent members journeyed north from London and other parts of England and Ireland, and the Scottish members appeared in full force. The programme was well arranged and most interesting, but if it erred it was in the superabundance of



THE LATE DR. CAMILLE MIOT, OF PARIS.





material, and many items of interest had, unfortunately, to be taken as read.

The Society is indebted to Professor Cleland for a long and detailed account of some points in the development of the mastoid and tympanic plate, which ought to prove very interesting reading. Dr. McBride's note on a case in which absence of the antrum was diagnosed during operation gave rise to an animated discussion. Mr. Cheatle commented on the use of the term "absence," and asked for the substitution of the term "obliteration." This involves a theory which, however, we consider Dr. McBride's description fully supports, namely, that the "absence" was the result of "obliteration" produced by inflammatory thickening.

Mr. R. H. Parry's brilliant operation of division of the eighth nerve was considered with well-deserved attention by all, while it was received with what we are inclined to think rather more severe criticism at the hands of some of the members than the circumstances demanded. We feel bound to support the opinion that it would have been better in the first instance to perform the radical mastoid operation. Apart from this, however, Mr. Parry's detailed description of the method by which he exposed the structures in the internal auditory meatus is worthy of the greatest attention. The patient recovered, and his sufferings were considerably mitigated. An unfortunate incident was the division of the facial nerve brought about by the removal of a detached portion of bone which turned out to be in the form of a ring surrounding the facial nerve. Apart from this, Mr. Parry states that the exposure of the parts was so complete that he would have had no difficulty in dividing the auditory without the facial nerve. The subsequent facio-accessory anastomosis was so far successful that the facial muscles acted very vigorously, but only when the shoulder was raised. The accessory was said to have been completely divided, which is probably the most effective proceeding, as shown by Mr. Ballance's series of cases. In one of these the face could be moved independently of the shoulder. Mr. Ballance stated that theoretically the facial should be anastomosed with the hypoglossal rather than the accessory. We may recall to our readers the abstract of a case published by Körte (*JOURNAL OF LARYNGOLOGY*, 1903, p. 446), in which is described the unhappy plight of a patient in whom the facio-hypoglossal anastomosis had been effected. For several months the paralysis of the tongue along with that of the buccinator made eating most difficult. Mr. Ballance's case with complete division of the fibres of the accessory probably shows the best obtainable result.

The *clou* of the meeting was perhaps Mr. Lake's case of vertigo, in which he burred away all the semicircular canals of one side, and which drew from Dr. Milligan the account of two cases in which he had performed the same operation.

Dr. J. H. Nicoll broke new ground in relation to the jugular vein. He recommended that in case of laceration of the upper part of the jugular vein his example should be followed of rapidly exposing the sigmoid sinus and obliterating it by pressure. The accident was apt to occur during the removal of tuberculous cervical glands in children, in whom the exposure of the sigmoid sinus could be very rapidly effected. In an operation for malignant disease of the tonsil he had ligatured the external carotid and plugged the lateral sinus. Apart from the indications generally received in cases of lateral sinus phlebitis, he had in some cases of tuberculosis of the petrous bone performed preliminary ligature of the internal jugular, especially in the presence of tuberculous glands. In this way he forestalled the possibility of tuberculous material being drawn into the large veins.

It will be seen that some eminently "progressive" steps in aural surgery characterised this meeting, and one may almost be forgiven for comparing the aural surgeon to the "sappeur" to whom, the French say, "*rien n'est sacré*."

Thirteen out of the eighteen items on the programme had to be taken as read, but their interest will be evident from the report of the meeting. Several of them referred to patients present for examination before the proceedings commenced. Dr. Brown-Kelly showed one with insufficiency of the soft palate and notching of the hard palate. This last condition has apparently received little or no attention, and its clinical importance is apparently not very decided. As in another of his cases there was notching of the palate without insufficiency, and, in a third, insufficiency without notching. Dr. Brown-Kelly's observations will draw attention to the subject. One of the first cases of temporo-sphenoidal abscess successfully operated on by Sir Wm. Macewen was brought forward by the President. Among other cases was one shown by the President and Dr. Nicoll, in which a pulsating tinnitus heard through the auscultation tube was unrelieved by ligature of vessels. These were apparently the external carotid and the posterior auricular. Dr. Dundas Grant found them checked by pressure in the sub-occipital triangles, the spaces in which he had long ago shown that the vertebral arteries could be compressed. The pulsation took place, therefore, in the internal auditory artery, and was quite independent of the carotid circulation.

Among the most interesting exhibits were a number of preparations by Dr. Albert Gray and Dr. Kerr Love.

Great regret was felt that the serious illness of Professor McKendrick prevented him from giving the demonstration of experiments illustrating recent researches on the physical nature of vowel tones and their bearing on the movements of the tympanic membrane. Dr. Colquhoun succeeded in interesting and instructing the Society by his admirable exposition and experimentation, but no one could reproduce the Professor's enthusiastic joy in the demonstration of material which his old students knew him to have so much at heart, and to which Dr. Colquhoun most feelingly referred. The demonstration refreshed the memory of the hearers with regard to much they had formerly learned, and brought them well up to the present state of knowledge of the subject.

The hospitality exercised by the President was greatly enjoyed, and gave point to Professor Urban Pritchard's post-prandial suggestion that the laws of the Society should be altered in order to admit of Dr. Barr being made Perpetual President.

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### THE FIFTEENTH INTERNATIONAL CONGRESS OF MEDICINE, LISBON, APRIL, 1906.

WE have received the first number of the *Journal of the Fifteenth International Congress of Medicine*, to be held in Lisbon from April 19 to 26, 1906. This number contains the regulations of the Congress, the organisation of the sections and of the different national committees. Under the second article of the regulations, besides doctors, only scientists introduced by the national or Portuguese committees can be admitted to the Congress.

The subscription is 25 francs or 20 marks or one pound sterling.

The work of the Congress is distributed in 17 sections as follows:

- 1—Anatomy (Descriptive and Comparative Anatomy, Anthropology, Embryology, Histology).
- 2—Physiology.
- 3—General Pathology, Bacteriology, and Pathological Anatomy.
- 4—Therapeutics and Pharmacology.
- 5—Medicine.
- 6—Pediatrics.
- 7—Neurology, Psychology, and Criminal Anthropology
- 8—Dermatology and Syphilography.
- 9—Surgery.
- 10—Medicine and Surgery of the Urinary Organs.
- 11—Ophthalmology.



- 12—Laryngology, Rhinology, Otology, and Stomatology.
- 13—Obstetrics and Gynæcology.
- 14—Hygiene and Epidemiology.
- 15—Military Medicine.
- 16—Legal Medicine.
- 17—Colonial and Naval Medicine.

The Executive Committee of the Congress will print, before the Congress opens, all the official reports; it is therefore necessary that they should be forwarded before September 30, 1905, to the General Secretary. Other communications should be forwarded before December 31, 1905, if the authors desire their conclusions printed before the opening of the Congress.

The official language is French. In the general assemblies, as well as in the sections, English, German, and French may be used. We note that the Committee of the Congress has excluded the Portuguese from the official languages; this has obviously been done with the intention of diminishing the number of languages.

The President of the Committee of Organisation is Dr. M. da Costa Alemão; the General Secretary is Dr. Miguel Bombarda; all adhesions must be addressed to the latter at the Hospital de Rilhafolles, Lisbon.

The following gentlemen form the Committee of Section 12, Laryngology, Rhinology, Otology and Stomatology:

*Président*—M. Gregorio Fernandes. *Secretaries*—M. Avelino Monteiro, M. Caldeira Cabral. *Membres*—MM. Amor de Mello, Manoel Valladares, Manuel Carocha, Sant'Anna Leite.

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## A CASE OF DEAFNESS FOLLOWING ON NASAL OBSTRUCTION WITHOUT OTHER DISEASE OF THE HEARING APPARATUS.

By Dr. WALLACE MACKENZIE, Wellington, N.Z.

A. P.—was under my treatment in the out-patient department of the Wellington District Hospital during February, 1897, on account of deafness in both ears.

His father died of cancer of the larynx at about fifty-seven years of age, otherwise his family history was good. The patient was a strong, healthy man twenty-four years of age. Five months previously he had had his nose treated with the galvano-cautery because he had a difficulty in breathing through it when he had a cold. After the treatment the nasal obstruction became almost

complete, and when I saw him he had become very deaf. He was sure that hearing was perfect before undergoing the treatment.

On examination both nostrils were closed by adhesion of the external walls to the septum. A little air could be blown out, but none drawn in through the nose, and a probe entered beyond the obstruction, along the superior fossa on each side. The fauces, pharynx, and naso-pharynx were healthy, and both tympanic membranes were somewhat indrawn.

On testing the hearing, he heard loud spoken words at each ear. He could not hear a large "C<sup>1</sup>" tuning fork by air conduction, while bone conduction was quite equal to normal on both sides.

I decided to first get clear passages through the nose, so took the patient into the hospital. Dr. Ewart gave chloroform, and, passing a probe-pointed bistoury past the adhesions above, I cut straight down to the floor of the nose, as it was impossible to find the old passage.

Bleeding was free and required to be controlled by plugging with gauze. On the right side the dividing knife had entered the lower part of the inferior meatus, which had not become adherent, but on the left side the raw surface extended right into the floor of the nose. On the floor and outer side of the left nostril I planted a piece of mucous membrane from the inside of the under lip, and on both sides inserted a long slip of celluloid from a photographic film to prevent adhesions forming again. Healing took place readily, and the patency of the cavities of the nose was soon re-established.

A fortnight after the operation hearing was distinctly better, and the improvement was noticed suddenly. Dr. Ewart, the medical superintendent of the hospital, drew my attention to the sudden and remarkable improvement in the man's hearing.

I saw the patient again on November 22 last. I tested his hearing from a low "C" tuning fork to the highest note given by my "Galton's whistle." I also tested his bone conduction, and the relation between bone and air conduction, and found his hearing in these respects normal. Testing with the watch and spoken voice showed the hearing distance to be up to the average, and the range of hearing good.

It is a matter of common observation that a person may have the nose completely blocked with polypus and yet retain good hearing, and when deafness accompanies polypus of the nose it is associated usually with mucus in the middle ears, but the whole environment of nasal polypus is totally different to a simple non-inflammatory obstruction of the nose.

A case is reported in the *Annales des Maladies de l'Oreille, du Larynx, du Nez, et du Pharynx*, January, 1894, in which a bony obstruction caused deafness; on removal of the obstruction the deafness was much improved. There has been a considerable number of similar cases reported since, and I have no doubt that it will come to be generally recognised that certain cases of nasal obstruction lead to deafness directly, and the reason for the deafness will be pointed out.

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### THE GALVANO-CAUTERY IN THE TREATMENT OF INTRA-LARYNGEAL GROWTHS.

BY DR. DUNDAS GRANT, F.R.C.S.,  
Surgeon to the Central London Throat Hospital.

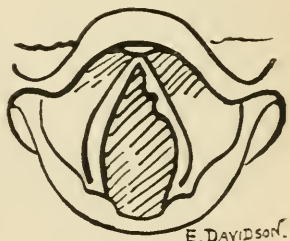
THE final removal of the stump of an intra-laryngeal growth is often as difficult as (to the expert) that of the main mass of it is easy. Oliver Wendell Holmes's happy analogy between the elaboration of the last few lines of a poem and the extraction of the last drops of oil out of a bottle is fairly applicable to the case in point. Such at least has been the experience of the writer.

Many valuable forms of intra-laryngeal forceps are at the disposal of the operator, and I believe that the form devised by myself for cutting growths off the edge of the vocal cord, the description of which appeared in the *Lancet* of June 3, 1893, has been in very general use for the intended purpose within the limits which the slightest consideration would impose. For growths on the upper surface of the cord it is of course inapplicable, and for these the form devised by the late McNeill Whistler is the most efficacious for those who have been accustomed to Mackenzie's instruments. These are available also for many growths in the anterior commissure, though here the snare (so strongly advocated by the late Lennox Browne) has its seat of election. Forceps with the tips bent forwards according to the designs of Lambert Lack and Fitzgerald Powell will often clear the anterior commissure when other instruments fail. The extirpation of the residual stump from which regrowth is very apt to take place often baffles instrumental interference, as, for instance, when the growth is on the edge of the vocal cord, but so near the anterior commissure that there is no room in front of it for the anterior blade of clean-cutting forceps. Such was the case in two instances lately under

my care, and in them I found in the galvano-cautery the means of effecting the final clearance.

CASE 1.—The patient was a comparatively young vocalist and actress whom I brought before the British Laryngological Association in July, 1894, having removed a small fibroma from the right vocal cord at the junction of the anterior and middle thirds. The removal by means of my own forceps was so complete that the patient was enabled to return to her avocation and continued to act and occasionally to sing up till November, 1902, when she came again to me on account of a return of her hoarseness. I found a fibroma on the same spot, but more sessile than the previous one, and I was able to effect only a partial removal by means of my forceps. I then lightly touched the spot with a fine galvano-cautery point on three occasions, with the result that complete disappearance of the growth and perfect restoration of voice ensued. This has continued to the present day.

CASE 2.—The patient was a woman aged fifty-one years, who had been practically voiceless for three years. I found a sessile fibroma occupying nearly the whole of the anterior third of the vibratory portion of the left vocal cord, and protruding to a considerable extent into the glottic slit. After removal of the main mass by means of my forceps, I reduced the growth to dimensions somewhat less than indicated in the figure.



The following is Dr. V. H. Wyatt Wingrave's report as to the microscopical structure:

"The growth consisted of a medullary part composed of fibrous tissue containing small fusiform nuclei with a few large oval nucleated cells (epithelioid), and also some large granular leucocytes. The matrix was homogeneous. The vessels (arteries) showed considerable thickening, and were numerous. The surface epithelium was very irregular in arrangement, being corrugated and in parts dipping into the subjacent tissues, but was not fimbriated. It was typical stratified squamous on the surface, the deepest layer being columnar. There was no suggestion of active mitotic nuclear change and no nest or pearl formation. In parts there was some vacuolation. Its nature may be considered as a fibro-papilloma."

The little remaining stump was sufficient to prevent the emission of conversational voice, and the application of various



astringents seemed to irritate the larynx without producing any diminution in the nodules. In spite of the difficulties in this particular case, to which I shall further allude, I succeeded in touching the stump with the galvano-cautery, and after five applications effected its complete removal, the voice becoming clear and strong, as it has remained till now (three months later), when the left vocal cord is perfectly normal. I showed the case to the Laryngological Society of London in January of the present year.

The difficulties in this latter case were manifold. The patient was a somewhat rotund personage, with extremely protuberant "bust" and a short neck, so that there was little room for the hand of the assistant holding out the tongue and of the one holding the Mount-Bleyer or Escat tongue-depressor, which the pendulousness of the epiglottis rendered necessary. In addition, the tongue was large in proportion to the size of the buccal cavity, even when the artificial teeth were removed. It was difficult even to introduce the laryngeal mirror. Finally, the epiglottis was pronouncedly "pendulous," and only very fleeting views of the seat of the disease were obtainable. It must be stated to the patient's credit that her good-will and patience were most exemplary. The introduction of my forceps required the exercise of some force, and the manipulation inside the larynx was necessarily carried out *à l'aveugle* in a way which would have been scarcely possible with a less guarded instrument. The use of the galvano-cautery had to be practised on totally different lines. For this the most complete illumination was necessary, so that the application should be made under the guidance of the eye. For this purpose I made use in the first instance of Mount-Bleyer's "epiglottis-lifter," the tip being placed in the vallecula in front of the epiglottis, the pressure therein causing this to rise up so that the anterior part of the glottis could be plainly seen. I found, however, that Escat's instrument caused less discomfort, and in this particular case permitted of as good a view of the larynx being obtained. I was thus enabled, after cocainisation, to overcome the difficulties I have mentioned and to effect the application of the galvano-cautery.

The cautery itself must answer certain requirements. It must be of the curve and length appropriate for the particular spot in the particular case. For this purpose it should be introduced "cold" and modified in shape and length (of vertical portion) until it can be made to touch the exact spot with as little difficulty as possible.

Again, it should be instantly responsive to the make and break

of the current. I use Schech's handle, and frequently renew the points, which Schall carefully files down for me at the extremity, till the incandescence and extinction are practically instantaneous. The extent to which the cautery has to be bent down is sometimes more considerable than would be anticipated. In Case 1 the bent-down portion was fully four inches in length, and I have at present under my care a patient on whose left vocal cord was a large sessile papilloma, which I was unable to reach by means of my longest laryngeal forceps, but which I have succeeded in reducing almost to a vanishing point by the use of the galvano-cautery bent down to as great a length. For such a small stump as I have described the lightest touch is all that is desirable, and ought, indeed, to be much less than at the time appears sufficient. In addition to the destruction of a portion by the actual burning away of substance, the subjacent part of the growth undergoes a certain amount of shrinkage. Complete burning away of the growth would, therefore, be attended by a risk of undesirable cicatrisation of the normal underlying structures.

I do not wish it to be inferred that in these manipulations I have never touched the normal neighbouring parts of the larynx. In Case 1 I certainly did avoid doing so; in Case 2 I more than once cauterised the superjacent portion of the ventricular band and also the opposite vocal cord. In the third case to which I have made reference the patient was exceptionally restless, besides being absolutely intolerant of the "epiglottis-lifter," and I slightly cauterised the laryngeal surface of the epiglottis. As a rule I was able to confine the momentary cauterisation to the desired spot, and in no instance did the involvement of the adjacent parts mentioned occasion anything approaching obstructive œdema, or, indeed, any symptom beyond a slight increase of hoarseness, which rapidly subsided.

With the precautions I have mentioned I believe that we have in the galvano-cautery an instrument which might be more frequently employed for the purpose under consideration than appears to be usual.

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### A SHORT NOTE UPON A PRELIMINARY STEP IN THE OPERATIVE TREATMENT OF CEREBELLAR ABSCESS.

BY WILLIAM MILLIGAN, M.D.,

Surgeon to the Manchester Hospital for Diseases of the Ear, etc.

IN the operative treatment of abscess of the cerebellum, a practical difficulty which has to be faced is the possibility of

sudden failure of respiration, with the result, either that artificial respiration has to be kept up during the operation and until pus has been evacuated and intra-cranial tension thereby relieved, or the patient passes into a gradually deeper and deeper state of coma and dies without regaining consciousness. This sudden failure of respiration has been attributed to paralysis of the respiratory centre due to increase of pressure upon the medulla. The œdema of the brain, which is present in cases of abscess, is liable also to be increased by the anæsthetic, whether it be chloroform or ether—more especially, however, with ether narcosis. Many cases of failure of respiration during operative procedures upon the cerebellum have been recorded, and undoubtedly the risk of this supervening adds to the risk of the operation *per se*. To diminish in some way this possible, if not probable, risk, the suggestion I desire to make is that in any case before an operation upon the cerebellum is undertaken for the relief of a supposed cerebellar abscess, it should be the routine practice to perform lumbar puncture and to draw off a varying amount of cerebro-spinal fluid—the amount varying with the pressure under which it appears to exist. By so doing the risk of failure of respiration from paralysis of the respiratory centre would be greatly diminished, if not entirely obviated.

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## SOCIETIES' PROCEEDINGS.

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### PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

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*Eighty-ninth Ordinary Meeting, April 8, 1904.*

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P. McBRIDE, M.D., F.R.C.P.Ed., *President, in the Chair.*

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The following cases and instruments were shown :

Dr. STCLAIR THOMSON showed a *Case of Membranous Ulceration of Fauces in a Woman aged thirty-six of Six Weeks' Duration.*

Over the upper part of the tonsil on each side was a well-defined ulcer, with sharp edges and coated with an easily detached pultaceous membrane. This resembled diphtheritic membrane so much that the patient had been sent in the first instance to the

Fever Hospital, and it was only after leaving there and on the persistence of the condition that she came under observation.

The glands were enlarged and only slightly tender. There was no marked dysphagia and no fever. There was a somewhat similar condition on the lingual and pharyngeal tonsil. There was no history of syphilis.

At first it was thought that it might be a case of Vincent's angina, but a search for the fusiform bacilli and the spirilla had been negative. A week ago some coppery spots had been noticed, and the patient was given specific treatment. Since then the ulcers had commenced to clear, and a mucous patch had come out on the soft palate. It was therefore thought that the case would prove to be one of syphilis.

Mr. BABER thought from the appearance this was a case of syphilis.

Dr. BALL said he was able to see a few reddish-brown papules, which seemed to him confirmatory of a syphilitic diagnosis.

Dr. THOMSON said that under specific treatment the case had improved during the last week, although for five weeks previously the condition had remained stationary. There were some papules on the shoulders and on the side of the nose which looked coppery. There was a condition similar to that on the fauces on Luschka's tonsil and on the lingual tonsil.

Mr. DE SANTI showed a *Case of Chronic Laryngitis (Pachydermia)*.

The patient was a woman, aged forty-three, who gave the history of continuous hoarseness of fifteen years' duration. She was a married woman with several children, and there was no history or evidence of syphilis or tubercle. She suffered from winter cough, and lately had been troubled with breathlessness. She also complained of a numbing sensation in the left arm and left side of the head of four years' duration.

Examination of the larynx revealed considerable general thickening and infiltration, particularly of the inter-arytenoid space.

There was also a small nodule on the right processus vocalis, with a slight corresponding depression on the opposite side. The left cord did not move so freely outwards in deep inspiration as the right one.

The patient was brought before the Society to ascertain the opinion of members as to the question of treatment. Mr. de Santi personally considered the best thing to be to leave the patient alone.



Dr. HERBERT TILLEY reminded the Society of a similar case which he had brought forward, and in which after several times removing the inter-arytenoid hyperplasia and then rubbing in strong nitrate of silver (grs. 80 ad 3j) the condition had practically disappeared, and the patient's voice was now excellent. In Dr. Tilley's case the patient was not addicted to alcohol, neither was there catarrhal or suppurative lesions in the nose.

Dr. LACK was rather surprised to hear the remarks on this case. He had shown one case at the Society, and his own—and he thought the general—experience was that, however much one might punch out the hoarseness always recurred, the relief obtained being only temporary. He thought Dr. Tilley was taking an unduly optimistic view, which was not warranted by the facts. The only treatment which seemed to do good was to treat the upper air passages, and to remove any disease in the nose or post-nasal space. In any case the result of treatment would not be very great.

Dr. THOMSON said he had watched a similar case five years ago in an alcoholic bus-driver, who once every year had a piece punched out of the inter-arytenoid space, and this kept him going for twelve months. This man was undoubtedly suffering from syphilitic disease.

Dr. DUNDAS GRANT said that the treatment of the nasal discharge was most important. At the present time he had under observation a woman in a similar condition. She was under the care of his late colleague Mr. Lennox Browne for twenty years, who was under the impression that the patient was suffering from syphilis. She always benefited by having a big swab forced down the larynx moistened with a solution of sulphate of copper. He himself had introduced the nasal treatment with great benefit in her case, and he had substituted salicylic acid for the cupric sulphate. He believed, however, the introduction of the nasal treatment had been the means of improving the patient's condition.

The PRESIDENT said one point of interest in the case had particularly struck him. Pachydermia laryngis, so far as he knew, was confined to the inter-arytenoid space and vocal processes, but in this case there was also a similar appearance at the anterior commissure. He would like to hear from Mr. de Santi whether he had met with this condition in cases of pure pachydermia laryngis?

Mr. DE SANTI was much obliged to the various members for the remarks on this case, but he thought the proposed methods of treatment were useless, and he quite agreed with Dr. Lack that these cases should be left alone. His reason for bringing the

patient before the Society was in case he had made an error in diagnosis, and something in that case might have been done. As regarded iodide of potassium, he had used it from the beginning of the case, *i.e.* for three weeks, and it only made the patient extremely uncomfortable. He did not intend to continue it. He could not account for the stenosis of which the patient was complaining. In reply to Dr. McBride he had not noticed the thickening in the anterior commissure. Doubtless he had missed it, but was very interested in hearing from Dr. McBride of its existence. He would keep the patient under observation and see if anything further happened. He would give her some nasal wash, but there was no gross nasal lesion.

Dr. LAMBERT LACK showed a *Case of Double Abductor Paralysis of Traumatic Origin.*

The patient cut his throat eighteen months ago, almost completely dividing the trachea at its junction with the larynx. Apparently both recurrent nerves were injured, as there had since been complete bilateral paralysis. The wound in the trachea was followed by considerable cicatricial contraction. This was partially overcome by the introduction of a T-shaped tracheotomy tube. The present condition was as follows:—There was an external opening into the trachea large enough to admit the tip of the little finger. The edges of this opening were healed, and it showed no signs of contracting. Just above it there was a narrowing of the lumen of the windpipe. There was bilateral abductor paralysis complete on the left side, with but slight movement of the right cord. The patient for the past three months had been able to breathe through the mouth, the opening in the trachea being closed by broad bands of strapping. He was quite comfortable while quiet or on gentle exertion, but suffered from dyspnoea when he worked, walked fast, etc. The dyspnoea apparently depended on the obstruction produced by the abductor paralysis and was not due to the stenosis of the trachea.

Dr. Lack inquired whether anything could be done in the way of operation extra- or intra-laryngeal to relieve the slight obstruction that remained, and whether it would be safe in the patient's present condition to close the external fistula, which he was very anxious to have done?

Dr. WATSON WILLIAMS asked if at the onset there was complete paralysis on both sides, before the present condition of bilateral abductor paralysis supervened. He presumed that the condition of the glottis was now that of considerable narrowness compared

to what it was at the time of the so-called accident, for the bilateral abductor fibres might have re-united, and under these circumstances he thought it possible that one might eventually get more complete restoration of movement by the return of abductor power, in which case it was important not to do anything which would interfere with the activity of the glottis.

Sir FELIX SEMON was particularly interested in the question of the cause of the bilateral abductor paralysis in this case. Surely it must have been a very extensive cut which could have reached both the recurrent laryngeal nerves, and it was not easy to see why the other neighbouring structures should have escaped. Probably the most plausible explanation was that there was a good deal of new formation of cicatricial connective-tissue in the neighbourhood of the recurrent laryngeal nerves which gradually compressed the nerves. Concerning the question of treatment he should feel inclined to leave matters *in statu quo*. Although the man could breathe if the opening was closed, he should advise the latter to be left as it was, otherwise he would be in constant danger of sudden stenosis in the event of occasional catarrhal swelling of the parts. As to intra-laryngeal operations, experience in similar cases had clearly shown that they were not very useful. He would remind them of the fact that when a vocal cord was removed in malignant disease of the larynx a cicatricial band usually formed in the region of its former situation, so that extirpation of a cord was likely to be followed by at least as great, if not greater, amount of stenosis than at present existed.

Dr. McBRIDE asked Dr. Lack if there had always been in this case greater movement of the right cord than of the left. The former moved to an appreciable extent—outwards and inwards—whereas the left cord was perfectly at rest. This condition was best seen when the patient attempted to laugh.

Dr. LACK supposed it was best to leave the patient alone, but he had shown the case in the hope of getting some suggestion. The patient was very anxious to have something done.

Mr. HUNTER TOD showed a *Case of Tubercular Laryngitis in a Girl aged thirteen, who was also suffering from Pulmonary Phthisis.*

This patient was under the care of Dr. Guthrie at the Paddington Green Children's Hospital. There was distinct evidence of tubercular disease of the left apex, which was improving under treatment. The mother had noticed that the voice was getting hoarse during the last two months. An examination of the larynx showed extensive papillomatous infiltration of the arytenoid space,

and the left vocal cord was hidden by a red swelling which projected from the ventricle, and which was presumably tuberculous infiltrated mucous membrane. Mr. Tod said he showed this case owing to the rare association of tubercular disease of the larynx with pulmonary phthisis in a child of that age.

Mr. HUNTER TOD showed *Three Cases in which Resection of the Nasal Septum had been Performed to Remedy Deviation.*

These cases were operated on, one eight weeks ago, and the other two five weeks ago. They all had complete obstruction of one side of the nose, and in one case there was tilting of the nose to the opposite side, producing external deformity. One of these cases had only been in the hospital twenty-four hours, and the other two forty-eight hours, after which period they were able to return to their ordinary occupation of life. Mr. Tod, in describing the operation, said that he first plugged the nose on the obstructed side with a very strong solution of suprarenal and cocaine. The patient was then anæsthetised in a recumbent position. By the time the patient was ready for operation the suprarenal-cocaine solution had so constricted the vessels that a very good view of the nasal cavity could be obtained, and the operation was rendered bloodless—a point of great importance. The mucous membrane was incised by a curved incision along the floor of the nose as far forward as possible, and was pushed back in order to expose the cartilage. The cartilage was then incised obliquely through its substance, care being taken not to pierce the mucous membrane on the opposite side. This was the only difficult part of the operation, and was best prevented by prising up the cartilage with the knife whilst cutting it through. The cartilage was easily separated from the mucous membrane on the opposite side by means of a blunt probe or the handle of a scalpel. The cartilage with the mucous membrane on the obstructed side was then punched away with a special pair of forceps which Mr. Tod had had made for his use by Messrs. Mayer and Meltzer. As much of the septum was removed as permitted a good view of the middle turbinate and the naso-pharynx, and, if necessary, part of the vomer and ethmoidal plate were also removed. The septum now to a great extent consisted of the single layer of mucous membrane of the opposite side which could be seen flapping to and fro during respiration. The operated side was now plugged with gauze to prevent hæmorrhage, which, after the use of suprarenal extract, might be very severe. The plugging was removed in twenty-four to thirty-six



hours. If the operation were successful the patient could now breathe freely through the previously obstructed side. The after-treatment consisted in the daily douching of the nose with a simple alkaline lotion, and if there were any formation of crusts on the wound surface it was advisable to spray the nose with an oily fluid. Mr. Tod said that he brought forward these cases owing to the interest the Society appeared to have taken in the Krieg-Bonninghaus operation, of which this operation was a modification.

The PRESIDENT said that the Society was greatly indebted to Mr. Tod for showing these cases. They were the first series shown in this country, so far as he knew, and they seemed most satisfactory results. His only regret was that the patients were not provided with probes, as it would have been interesting to feel the consistence of the tissues. It looked as if there were more than one layer of membrane and as if some regeneration of cartilage had occurred.

Mr. BABER said he was very interested in these cases, and asked whether Mr. Tod had only removed the cartilage or also some of the bone. In one of the cases, behind the portion removed there appeared to be a ridge, probably bony. In that case it was a question whether a further operation was required to make that side clearer.

Dr. PEGLER said there seemed to be no question as to the simplicity of the after-treatment in the method exemplified by Mr. Hunter Tod's cases: he felt bound to admit on the other hand that in the method of Moure, examples of which he hoped to show at the next meeting, considerable care in the after-management was necessary, especially in the use of the splint. At the same time the sphere of application in Moure's operation was larger; he had employed it in almost every conceivable form and degree of deflection, and even when the latter was extended back to the osseous area in the posterior third of the vomer—the most difficult variety of all—a successful result might be relied upon. In Mr. Tod's cases the stiffening of the mucous membrane was very marked, and one could not help being astonished at the degree of deposition that had taken place in the period that had elapsed since the resection.

Dr. SCANES SPICER said that the class of cases for which Moure's, Asch's and similar operations were best suited and the one for which the fenster operation was suited, were quite different. This latter operation had been done in England for at least the last ten years for those cases in which the cartilage projects into the vestibule at its most anterior margin, *i.e.*, where the obstruction was in the vestibule itself, and it had been a common practice with

many British rhinologists to make a longitudinal incision over the edge which projected, and to detach the projecting and obstructing front of the cartilage from the surrounding tissues—often a matter of some difficulty—and resect as much of the septum as was necessary in order to completely clear the obstruction. He had not thought it necessary to publicly exhibit such well-accepted proceedings, but apparently their exhibition met a want. He congratulated Mr. Tod on these successful instances of a sound procedure. Moure's operation was suitable for those cases where the greatest "bulge" was much farther back.

Dr. WATSON WILLIAMS was extremely interested in these cases. He had done these operations himself and the results had been satisfactory in most of them. There were one or two questions he would like to ask: firstly, was there any objection to resorting to this procedure in the case of young children, or would it materially interfere with the development of cartilage subsequently and thus cause serious deformity? He had a small boy of twelve the other day, on whom he did the operation, as being the best available procedure, but he did as little as possible, owing to his anxiety as to the result in later years. With regard to the cases under discussion, he had taken the opportunity of improvising a probe with which to test their solidity. The "new" septum seemed very firm indeed, as it had been in several cases of his own. He also wished to know whether any of those members who had done the operation had commenced with the removal of the cartilage absolutely from the anterior free border, and, if so, had the results been unfortunate. He asked this because it seemed to him very tempting to start at that border and so avoid the difficulties that are met with in getting a free edge farther back.

Dr. HILL asked Mr. Tod if he would vouch for it that the after-troubles due to excessive repair, which were so emphasized recently by Sir Felix Semon as occurring in septal operations, were less in his method of resection than in the more crude operations which they usually performed. That in itself would be a good reason for adopting it, although it was a little more lengthy and perhaps more difficult. He agreed with Dr. Spicer that an operation somewhat similar in principle had been carried out for many years in this country, but he contended that these slight resections, even when they involved the whole thickness of the septal cartilage, differed most markedly in extensiveness and technique from the "fenster" operation under discussion.

Dr. GRANT asked, with regard to the case in which Mr. Tod thought the result was least good, if he was able to detach the

muco-periosteum from the very deep groove on the right side of the septum. This was one of those septums which he called by the name of "crumpled" as the result of severe traumatism. There was a round convexity on the one side and a deep groove on the other, and it was difficult to take off sufficient of the side with the single convexity without making a perforation. His plan was to take away as little as possible to produce sufficient breathing space. But if one could feel certain that the muco-periosteum could be detached sufficiently from the side on which was the deep groove, one might go more boldly to work than had hitherto been his habit in these cases. It was a matter for regret that Dr. Spicer had not brought forward within the last ten years his results. He must say that in some of his cases where disappointment was his chief feeling at the time of the operation, these very same cases had been reported to him months and years afterwards as being amongst his most brilliant successes, whereas in other cases the results seemed splendid at the time but were disappointing in their later history.

Mr. THORNE said he congratulated Mr. Hunter Tod; any operation which did away with the use of splints and reduced the length of after-treatment was to be commended.

Dr. FITZGERALD POWELL said that Mr. Tod's cases certainly showed good results, upon which he congratulated him, but the operation could in no sense be described as a new one. No doubt many of the members had practised it, and he had done so himself for a long time. He considered it most useful in those cases of deviations or spurs near the anterior portion of the septum. He thought it would be more interesting if the patients were shown before and after the operation.

Dr. BALL agreed with Dr. Scanes Spicer that this operation had been done pretty frequently in this country for the last ten or twelve years. At any rate, he had employed this method in dealing with many cases of deformed septum for several years, and he had no idea until lately that there was supposed to be any novelty in the method. He first incised the mucous membrane on the convex side, and then, if the cartilage was not already split, which it often was at the site of a sharp bend, he incised the cartilage, taking care not to perforate the mucous membrane on the opposite side. He then separated the mucous membrane of the opposite side with a blunt periosteum elevator. In some cases the mucous membrane of the convex side could be turned back and preserved. The cartilage was removed bit by bit with a punch forceps as far as was necessary to restore the patency of

the passage. Where the anterior end of the cartilage was deviated he removed the cartilage right down to the free edge. No deformity or ill effect resulted from this proceeding. It was occasionally possible to stitch up the mucous membrane on the convex side, but this was mostly impracticable, and was unnecessary.

Dr. THOMSON said he had performed a similar operation, but with complete submucous resection of the deviated septum, extending from a few millimetres within the orifice to the bony vomer. He had separated the two mucous membranes, taken out the divided portion of the septum, and then put the two muco-perichondria together again. In a case in private practice operated one week the patient was able the following week to go to a ball—so rapid was the recovery by this method. There was no scabbing, except along three little stitches which he had put in in front to secure the edges to the muco-periosteum. These deviations were so extensive that one patient could not inspire at all through one nostril, with the result that she breathed through one side of the nose only. He had not yet shown or published his cases. In them the septum consisted only of muco-periosteum, and in forced respiration it fluttered like a sail in the wind and had done so for three months now. One case was done at the end of November, and the septum could even now be seen quivering, but there was no disfigurement, and the patient seemed none the worse for it. This mode of operation introduced several great improvements—(1) Thoroughness of removal of stenosis; (2) impossibility of recurrence; (3) abbreviation of after-treatment; and (4) avoidance of risks of adhesions or atrophy and scabbing.

Mr. TOD, in reply, said he was pleased his cases had afforded so good a discussion. He was well aware that resection of the septum was not a new operation, but, so far as he knew, it had not been done in this country. He had first seen it performed four years ago in Berlin by Jansen, who operated under the local anæsthesia of cocaine, the patient sitting in a chair. He thought the operations described by Mr. Ball and Dr. Scanes Spicer could hardly be considered a resection of the nasal septum: they appeared to be the mere cutting away of a cartilaginous projection of the anterior part of the septum. He agreed with Dr. Spicer that the more anterior the deviation, the simpler became the operation, and that this operation was eminently adapted for cases of deviation of the anterior part of the cartilage, but at the same time the resection of the cartilage could be carried back as far as might be necessary, even removing part of the vomer



and ethmoidal plate. In those cases referred to by Dr. Dundas Grant, where there was a "kink" in the septum, and where, after an injury or cauterising of the septum, the mucous membrane was adherent to the cartilage, it was sometimes quite impossible to prevent a perforation. In answer to Dr. Hill, Mr. Tod said that the after-results were excellent as a rule. In one of the cases exhibited a slight adhesion had occurred between the inferior turbinate and the raw surface of the septum, but three weeks after the operation this had been removed and the patient, as could be seen, now had plenty of breathing room on both sides of the nose. In answer to Dr. Pegler, who suggested that all the cartilage had not been removed, he could state with certainty that he had done so. After the operation the mucous membrane of the opposite side could be seen flapping to and fro during respiration. A month or so after the operation, owing to the stiffening of the septum, it was difficult to tell how much of the cartilage had been removed; it always appeared as if far less had been removed than had actually been the case. With regard to removing the mucous membrane, if the nose was narrow, it gave more room. In some cases the mucous membrane was very thick, and if it was removed and eventually replaced by scar tissue the amount of room gained was considerable. The chief objection was the tendency for crusts to collect on the wound surface. In the worst cases the patient might not get rid of this trouble for nearly two months: in other cases the healing was rapid and there was no discomfort. He had not done this operation on children, partly because he thought the smallness of the nose would make the operation very difficult, partly from fear of producing some external deformity from arresting the development of the septum. He had removed the whole of the cartilage in several cases where the septum had been dislocated anteriorly, but afterwards, in two cases, there was a slight dipping in and extreme mobility of the tip of the nose; in consequence he thought it would be wiser not to remove the anterior margin of the cartilage. Mr. Tod, in conclusion, said he would be very pleased to show some cases to the Society before operation and again after the operation had been performed.

Dr. HERBERT TILLEY showed a *Case illustrating the Permanence of a Successful Operation in the Case of Extensive Adhesions of Soft Palate to the Posterior Pharyngeal Wall.*

(For full notes of case *vide* JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, vol. xviii, p. 271.)

The PRESIDENT said the Society was obliged to Dr. Tilley for

showing the case, which seemed to illustrate all that was claimed for it.

Dr. POWELL said that he was rather inclined to question the utility of this operation at their last meeting, and in taking up this attitude he was supported by the fact that at a former meeting the opinion of the Society was strongly expressed to the effect that these operations were not desirable owing to the poor results generally obtained. This opinion was just as strongly contradicted by the result of operation in this case, which was excellent. He would like to know whether the operation was done simply to give the woman breathing space or to relieve any of the other severe symptoms that occurred, such as pain in the occiput or back of the neck.

Mr. DE SANTI said the case of his to which Dr. Tilley had referred in his opening remarks was done six years ago, and the result was as good as that seen in this patient. He saw his patient once a year, and next time he saw her she should be brought to the Society again.

Dr. HERBERT TILLEY brought the case forward again because at the last meeting of the Society a member had expressed some doubt as to whether any operative interference was of real permanent value in these cases. The operation was performed thirteen months ago, and in place of a small opening between the naso- and oro-pharynx which would only admit a probe, there was now a large, permanent, and free communication. The chief symptom before the operation was the accumulation and discharge of mucus from the anterior nares.

Dr. W. H. KELSON showed cases of *Disease of Fauces simulating Syphilis*.

(a) A man aged twenty-five, who for eighteen months had been suffering from whitish patches on a red inflamed-looking base on tonsil and palate; also (b) a man aged forty who had similar patches in a similar position for thirteen months. These cases, together with that of a girl shown in May, 1903, had the following points in common:—

1. There was no history of syphilis or any other sign of it to be found after careful search.

2. The disease was of over a year's duration, getting almost well, then reappearing.

3. It was superficial in character, leaving no cicatrices, and the nose and larynx were not affected.

4. Antisyphilitic remedies had no effect on any of them.

Dr. J. B. BALL showed a *Case of Melanotic Sarcoma of the Soft Palate*.

The patient, a man aged fifty-three, had noticed some black patches on the palate about two years ago. Some seven or eight months ago a growth commenced on the soft palate, but as it gave him no inconvenience he took little notice of it until three weeks ago, when it bled. He then showed it to his doctor. There was a dark-looking, flattened, somewhat mushroom-like growth on the middle of the soft palate, covering an area about the size of a shilling. There were numerous black patches on the hard and soft palate and on the upper gums. There was some slight glandular enlargement under the chin near the middle line. He had lost about a stone in weight during the last twelve months.

Dr. DUNDAS GRANT thought this case well worth the expense of reproduction by an illustration, as it was such a beautiful and rare case. He did not think it would be beyond the means of the Society.

Sir FELIX SEMON seconded Dr. Grant's motion.

Mr. DE SANTI said the question before the Society was whether any operation could with benefit be undertaken. Any one with experience of melanotic sarcoma knew that it was the most malignant form of sarcoma. He had always taught that if a melanotic sarcoma in any part of the body had reached the size of a filbert nut there was an almost certainty of numerous secondary growths being present in some part of the body. He should say that the prognosis was a very poor one indeed, taking the nature and size of the tumour into consideration, but he thought it would be right to give the man some chance by doing an extensive operation on the palate and removing the new growth freely. The question was whether any operation could be done with regard to the patches scattered on the palate and gums. Personally he should leave these and remove only (and freely) the growth in the palate. It would be interesting to hear the result of operation and the future progress of the case. Melanotic sarcoma was far from common in any part of the body, but particularly rare in the palate.

The PRESIDENT had not seen a case like this before.

Mr. E. B. WAGGETT showed *Shears for Division of the Thyroid Cartilage*.

Mr. Waggett showed a pair of laryngotomy shears for division of the thyroid cartilage without damage to the vocal cords. The shears have strong thick blades set at a right angle to the handles.

The inner blade is inserted from below through an incision in the cricothyroid membrane. The outer blade is provided with a projecting tooth at its distal end. This tooth enables the surgeon to fix the blade exactly in the mid-line of the larynx before cutting through the thyroid cartilage. It was impossible to injure the vocal cords with this instrument, which had been found very efficient in half a dozen cases.

MR. DE SANTI said that in the last edition of Treves' 'Operative Surgery' he saw that it was laid down that no form of bone forceps whatever should be used in doing the operation of thyrotomy, but that a saw should be used. He thought this must be an error, or an entire oversight on the part of the author. It was the general custom to use some form of cutting forceps to divide the thyroid cartilage in the middle line, except in those cases—and they were a majority—in which the thyroid cartilage was ossified, in which case a suitable saw might be used.

SIR FELIX SEMON said that in a certain number of cases to which Mr. de Santi had referred, and their number was great, one was not able to cut with any scissors. The late Dr. Eugen Hahn had presented him with an excellent pair of bone scissors, with which he had done a good many cases, but they had proved insufficient in other cases. If one used too much force, particularly in operations for malignant disease in elderly people, one ran considerable risks of fracturing the thyroid, owing to the ossification of the cartilages. With regard to the saw, it was sometimes quite a difficult thing, owing to the mobility of the larynx, to saw through an ossified cartilage, even when the larynx was fixed by the fingers of an assistant. Mr. Waggett's instrument seemed to him a very useful one, and he should give it a trial in his next operation.

MR. WAGGETT showed an *Aseptic Forehead Mirror Handle*.

MR. WAGGETT showed an aseptic forehead mirror handle, easily detached so as to be sterilised between two operations, and thus enabling the surgeon to adjust his mirror without needing to recleanse his fingers during an operation.

MR. BABER thought that clips for attaching to the reflector were in common use; he had himself used them for a long time—a little piece of sheet zinc bent double and clipped on to the edge of the mirror. This could be sterilised, and saved touching a dirty reflector during an operation.

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Ninetieth Ordinary Meeting, May 6, 1904.

CHARTERS J. SYMONDS, M.S., *Vice-President, in the Chair.*

The following cases and specimens were shown :

Dr. STCLAIR THOMSON showed a *Case of Complete Submucous Resection of Deflected Septum.*

Through the kindness of a private patient, Dr. Thomson said that he was able to show a case in which a large deviation of the septum had been completely excised, but with preservation of the muco-perichondrium on each side.

The operation performed in the case presented differed, he thought, to a considerable extent from any other previously described or exhibited in this country. It was impossible to give anything like an adequate description of the operation in the short time at his command, but, briefly stated, it was as follows:—

An incision is made through the perichondrium, on the convex side, and the membrane reflected. The cartilage is then divided through to the under surface of the mucous membrane on the opposite side, which is not incised. The two layers of mucous membrane are separated as far back as necessary, and the deviated portion is then excised.

The specimen was handed round to show what a large and extensive deviation with part of the bony septum could thus be removed, and to show that hardly any other method of operation could have satisfactorily relieved the case. The two mucous membranes come in apposition; the healing is rapid; and as the mucous surface, with its ciliated epithelium, is thus preserved, there is no risk of any atrophic condition, and the period of healing is reduced to a few days.

Mr. SYMONDS said he did not understand from the introductory remarks made by Dr. Thomson whether the deflection was confined to the cartilage or involved the bone. He heartily congratulated him on the excellent result. He thought the man's nose was altered in shape, and he asked the patient, who said that if anything it was straighter than it was before.

Mr. BABER congratulated Dr. Thomson on the successful operation in this case. He noticed there was a little prominence left in the lower part of the vestibule on the right side. He would like to ask whether Dr. Thomson found this operation more difficult in young persons. Once, in operating on a boy of fifteen, he found

great difficulty in separating the periosteum from the cartilage. He thought it might be advisable to limit the operation to older persons. As far as memory served him, the youngest patient in the series of cases given by Menzel, in describing the operation with successful results, was eighteen years old.

Dr. GRANT said the result was ideal, and re-echoed the approbations expressed by Mr. Baber. What knife was used? What precautions were taken to minimise the risk of buttonholing the muco-periosteum on the other side?

Dr. PEGLER asked Dr. Thomson whether he had also done the operation of which Mr. Tod had shown examples at the last meeting, and, if so, he would be glad to have the benefit of his experience as regards the merits of the two operations, and the time relatively occupied.

Mr. TOD asked how long it took to perform this submucous resection. He had himself attempted it, but had found it extremely difficult, especially when working far back in the nose, and for this reason he now removed the mucous membrane on the obstructed side. He usually had to perform this operation in the out-patient department, where time was of value. The great disadvantage of the submucous resection was the long time it took to perform; its great advantage, which was well shown in Dr. StClair Thomson's case, was the rapidity of healing.

Dr. SCANES SPICER asked what were the points in which these recently discussed operations differed from the older operations of submucous resection. In 1851 Chassaignac resected the septum submucously. Several years afterwards the names of Hartmann and Petersen were associated with the same procedure. It was mentioned in Mackenzie's, McBride's, Macdonald's, and Ball's textbooks of ten years ago and more, and indeed the procedure was by no means a new or uncommon one. Greville Macdonald read a paper at the Glasgow meeting of the British Medical Association in 1888 on this point, and he called it a "new operation." The speaker remembered making some remarks on that occasion. He knew that both Macdonald and himself had been doing the operation ever since. It had been said that the new operation was more extensive, and took cognisance of the bone, but Macdonald's operation was not confined to the cartilage, because he removed the bone with a saw, if necessary, submucously. Since so much had been said at the Society's meetings about microscopic spurs and their removal from the nose, and as this operation was one of those adapted for cases of what had in the past often been dubbed microscopic spurs, he was exceedingly anxious that the work of

those rhinologists who had been doing this well-recognised operation in suitable cases for some years should not now, after having been gravely questioned, be ignored. He congratulated Dr. Thomson very considerably on the result of his case. He had not the slightest doubt that there was very great improvement in respiration, and the patient expressed himself as satisfied. There was, however, some sinking of the tip of the nose and the columella was widened at the base. Having himself experienced the difficulties of these cases, he desired not to be hypercritical, but he was very chary of cutting away much from the antero-superior border and tip of the septal cartilage.

Dr. SMURTHWAITE had shown a similar case eight months ago, to the Northumberland and Durham Medical Society, a description of which appeared in the journal of that Society. He removed the whole of the cartilaginous portion of the septum, reflecting the muco-perichondrium on the convex side, and after the removal of the cartilage bringing the membrane back and stitching the same. This operation took a long time—one hour and a half to two hours. The patient sat in a chair under local anæsthesia of eucaine and adrenalin to prevent hæmorrhage; there was no pain and no bleeding, and at the end of the operation the patient was able to walk out of the consulting room. He had got the idea first in Vienna from Hajek; the latter used to do this operation for straightening saddle-back nose, his opinion being that in certain cases of saddle-back nose one had a deflection of the septum either to the one side or to the other, which pulled in the bridge of the lower part of the nose. If one resected the cartilage, the membrane was allowed to slip up again and the nose to straighten. He had seen this operation done only a fortnight before leaving Vienna, consequently he could not speak as to the result of the saddle-back nose. He himself experimented first on a number of cadavera, and a year ago last January did his first case on the living subject, afterwards showing it as a good result to the above-mentioned Society. He had done five others, all under local anæsthesia—one last week with a perfect result.

Dr. STCLAIR THOMSON, in reply, said that some of the bony septum was removed; it could be seen in the specimen. There was much difficulty in getting at the spine of the superior maxilla, of which, as Mr. Baber had rightly noticed, part still remained. This spine lay below the level of the vestibule, and was difficult to follow down. He took a good portion off, as could be felt amongst the *débris*. The knife he had made was one which cut all round the point. With it he made an incision on the convex side about five milli-

metres inside the junction of the skin and mucous membrane. The precautions to avoid buttonholing were simply patience and perseverance; and were particularly required when cutting through the cartilage to avoid going through the mucous membrane on the opposite side. He did it by watching from time to time the opposite nostril to make sure of not puncturing the mucosa. He did not find the difficulty in avoiding making punctures when cutting the cartilage as much as in separating the mucosa from the concavity, as was mentioned at the last meeting. In this region there seemed to have been repeated attacks of a chronic inflammatory nature, which rendered it very adherent to the cartilage. He had never done the "fenster-resection" operation recommended by Mr. Tod at the last meeting, because he thought the preservation of the mucous membrane was so important, the healing much quicker, there was no possibility of atrophic rhinitis, and the outside appearance was as good. This method on all these points seemed to have a great superiority. As to the appearance, he had had his case photographed before the operation, and it would now be seen that the patient's appearance was decidedly improved. The patient himself was well pleased with it. As to the length of time taken, the patient was two hours under the anæsthetic. He had taken three hours in the case of a patient, whom he would show at the next meeting, in whom a long spur went as far back as the vomer. The time taken was the great drawback to the method. He had seen the operation performed in Germany by Professor Killian, who took one to one hour and a half under cocaine. As to the "novelty" of the operation, the question of priority was not of very great importance; the useful thing was to establish the method as the best known at present for marked deviation of the septum. Dr. Thomson said that he himself at the last meeting had quoted Dr. Greville Macdonald as describing a similar method in his book published in 1890. But that method, although saving the mucous membrane, only aimed at removing superabundant cartilage, and could not for a minute compare with the complete excision of the deflected septum. As to the hæmorrhage in the earlier cases, he used a submucous injection of cocaine and adrenalin, but in the later cases he had only plugged the nose for twenty minutes with adrenalin and cocaine, and not a teaspoonful of blood was lost. The operation was practically bloodless. He put no sponge in the postnasal space, and it was not even necessary to sponge out the mouth once. After incising with the knife he had shown them the muco-periosteum was reflected as described. He then took out a large piece of the deviation with an ordinary pair of nasal scissors.



As he worked farther back, he contented himself with punching out. The forceps used differed from Grünwald's in that the male blade was not fenestrated. He had adopted the needle holder (shown) for stitching, as he had great difficulty with others; possibly it was not original. With it he used Arbuthnot Lane's needles for cleft palates, and very fine silk. The great advantage of the sutures lay in the doing away with nose plugging, the patient being comfortable from the moment of operation.

Dr. HEMINGTON PEGLER showed a *Group of Cases of Deflection of the Septum rectified by Moure's Operation.*

Five patients were present holding cards in their hands containing rough details, and numbered in their precise order and sequence of operation. Two were polypus cases, and each one differed from another in particulars of treatment.

CASE 1.—T. W—, aged forty-eight. Case of ethmoidal disease with numerous polypi blocking the expanded right fossa, some also in the left, but only just visible owing to exaggerated left deviation commencing in the vomer near the choanæ where the bone was deeply indented, and involving the ethmoid plate and triangular cartilage, the latter chiefly in the region of the middle meatus. This case, therefore, was beset with unusual difficulties, and not yet quite out of hand. After polypus removal and curettement in the right fossa, Moure's operation was done, enabling a number of polypi to be snared from the left fossa, into which they had quickly descended on removal of the splint. Subsequent tumefaction of the so-called tubercle required a shaving to be taken off, and the raw surface had not yet healed. The breath-way through the left side had been freely restored, but the fossæ did not present by any means their final appearance. At this stage a fissure was discernible along the maxillary crest, and was likely to remain. Dr. Pegler had not hitherto met with this residuum in a "Moure," but the extent of the deflection rendered it apparently inevitable.

CASE 2.—G. A—, a youth with marked cartilaginous deflection to the left. He had a lisping impediment and high-arched palate. After rectification of the septum, right anterior turbinotomy had been done, and an ample breath-way on either side was the result.

CASE 3.—S. C—, who would be recognised as the Scotsman in the group, an old patient, who six years ago had had anterior turbinotomy performed, and now turned up again dissatisfied with his nasal condition. The fossæ were of an exceedingly narrow type and had always given difficulty, but the patient was importunate. Moure's operation left really little to be desired in the case,

but a bony exostosis had been brought into view far back in the right fossa which still remained to be dealt with.

CASE 4.—H. G.—. Long antero-posterior deflection to the left. Numerous polypi removed from the right fossa and a spur sawn from the stenosed left fossa last autumn. Found still attending amongst the old patients in March last complaining of left-sided obstruction. Moure's operation done. Patient returned to work in a week; septum now quite level on both sides and the breathing free.

CASE 5.—W. P.—. Strong deflection to the left. As in Case 2, after Moure's operation the encroachment upon the neighbouring fossa required something more. A shaving taken from the triangular cartilage anteriorly to the deflection ultimately gave an excellent result.

Mr. WAGGETT said, with regard to Moure's operation, that a great advantage it possessed was the rapidity with which it could be done, *i. e.* 60 seconds under nitrous oxide anæsthesia. The results here spoke for themselves as being good. Moure's was a scientifically conceived operation, and the splints which had to be used for from five to eight days did not infringe on any raw surface, the cuts being placed above and below the area afterwards covered by the splint.

Dr. GRANT said he was in complete accord with regard to Mr. Waggett's remarks upon Moure's operation. He had made a simplification in it which he had put into practice in one or two cases. In the first place, Moure's operation was entirely for those cases in which the deflection was in the cartilage. This could be obliterated for the moment by putting a needle in from the concave side and taking it out through the convex side, straightening the septum, and then bringing the needle out again to the original side behind the concavity. *After* this Moure's incisions could be made. The whole operation could thus be very quickly performed. One of his cases developed scarlet fever within two days after the operation, and he had to pull out the needle. In that case a small perforation remained in the septum, but in no others had perforation occurred. He thought this method was well worthy of consideration, especially in the typical cases of deflection of the cartilaginous septum.

Mr. BABER thought these results very satisfactory on the whole. As regards the question of the needle, he remembered thirteen or fourteen years ago operating on several cases by making an incision through the cartilage above and below, pushing it across and retaining it in position by means of a steel pin passed through it

on the previously concave side. The head of the pin rested in the vestibule and the point on the septum behind the deflection. If kept *in situ* long enough the pin retained the cartilage in position. It might be worth while trying this method after the use of Dr. Pegler's shears.

Dr. LACK said he was pleased to hear Mr. Waggett's remarks, because he thought some member ought to enter a strong protest. The majority of cases of deflected septum could be quite satisfactorily treated by a small short operation involving no very great risk, and he doubted very much whether operations requiring two or three hours' anæsthesia were really justifiable.

Dr. SMURTHWAITE said with regard to the two operations that one ought to select one's cases. He would not think of doing a long operation on a nervous patient under local anæsthesia. If there was plenty of room on the opposite side one could do Moure's operation. On the other hand, if the lumen of the opposite nostril was inclined to be narrow, then he would advise submucous resection.

Dr. SCANES SPICER suggested *the* paramount necessity of having a thoroughly reliable anæsthetist.

Dr. HERBERT TILLEY could thoroughly endorse the remarks made by Dr. Pegler with reference to the obstruction caused by over-correction of a deviated septum. For a long while past he (the speaker) had made a rule always to commence the operation for deflected septum by removal of the anterior half of the inferior turbinal on the free side, otherwise this side invariably became the obstructed side after the septal deviation was corrected.

Dr. PEGLER, in reply, thanked the Society for the interest exhibited in his cases. Touching Dr. Grant's and Mr. Cresswell Baber's observations upon the pinning of the convexity as an aid, he had no doubt of its value in their hands, but he had never had occasion to try it. He had, however, long advocated anterior turbinotomy as a frequently indispensable adjunct, and the cases he was then showing exemplified the fact. The time taken up was infinitesimal in comparison with submucous resection methods. A week ago he completed a Moure operation in a minute or two under cocaine, as one of his friends now present would testify; the patient was leaving the hospital quite healed that day.

Dr. KELSON showed a *Case of Ulceration of Epiglottis and Vocal Cord in a Boy of Twelve.*

A boy aged twelve, who for eight months had suffered from

hoarseness: a vocal cord and the epiglottis were ulcerated. There were no signs of hereditary syphilis. There was a family history of phthisis, but no changes were to be found in the boy's lungs, nor tubercle bacilli in his sputa. The disease was thought to be lupus.

Dr. KELSON showed a *Case of Parotid Swelling in a Boy aged Fourteen.*

The patient presented had a soft semi-fluctuating swelling in the right parotid region, which was said to have existed for two years: it was not tender or painful, and was slowly increasing in size.

Dr. DENNIS VINRACE suggested the possibility of it being a lipoma or mucous cyst, and pointed out that its clinical characters were not in harmony with parotid gland tissue.

The PRESIDENT said views of members as to the diagnosis were desired. He thought it arose in a foetal relic of the branchial cleft in that position. He had seen such a tumour in front of the ear and it was translucent. He himself did not think it was an obstruction of the parotid duct from the fact that there was no history of any alteration in size during meals.

Mr. DE SANTI came to the conclusion that this condition was connected with some foetal remains, *i. e.* a branchial cleft, and had been present much longer than the patient was evidently aware of. He did not share the opinion of some that it was a fatty tumour; the skin was not adherent at all, it was too soft and not lobulated.

Dr. H. J. DAVIS showed a *Case of Linear Perforation of the Left Vocal Cord.*

The patient, a woman aged thirty-nine, had swollen granular cords, and there were physical signs of consolidation in the right apex; hoarseness had persisted nine months. There was a small nodule on the left cord, and during phonation an elliptical opening was momentarily visible in the middle third of the cord. The perforation was in the cord, and it was not, he thought, the result of any previous ulceration.

Sir FELIX SEMON thought this laryngeal appearance a very unusual one, and had not seen anything like it before. It was not easy to see the slit, but it could be noticed at occasional moments when the patient phonated. Once he had a distinct glimpse of it. He had no opinion to offer as to its nature, and its pathology was very difficult to understand. He had certainly not met with any tubercular ulceration leaving a slit such as this behind.



The PRESIDENT said that he understood that there were signs of tuberculosis in the right chest. The margins of the slit were so parallel to one another that the opening resembled a congenital defect.

Dr. DONELAN said he remembered seeing a case under the care of the late Sir Morell Mackenzie in which a vocal cord had a longitudinal slit separating a thin slip on the inner edge of the cord. It was thought to be congenital.

Dr. DAVIS also showed a *Woman with Chronic Cough*.

This patient, aged forty, had been attending various hospitals for a chronic and persistent cough for eight years. She went to the medical out-patient department at the West London Hospital and asked "for some cough mixture, though it never did her any good." There were no physical signs in the chest, but the uvula was elongated, and the pharyngeal mucous membrane showed atrophy to an extreme degree, and the pallor of the atrophied parts was accentuated by the presence of two vertical bands of red, hypertrophied mucous membrane, extending downwards. The appearance at first suggested healed ulceration, but the condition was, he thought, that of atrophic pharyngitis only. Both turbinates were enlarged, and there was nasal obstruction. The patient did not complain of any throat symptoms, and she had never to her knowledge had any trouble with the throat; she had had two miscarriages, and five healthy children.

Dr. FITZGERALD POWELL thought there was not much doubt about this being a case of specific ulceration of the posterior wall. There were present undoubted cicatricial tissue and granulations which were in all probability syphilitic. One could make out quite plainly the "puckering" of the cicatricial tissue when she retched, and the granulations caused the cough.

Dr. BRADY asked whether the aural reflex might not be the cause of the cough. There was chronic middle-ear suppuration on both sides and a hard accumulation in the left ear. He had often noticed in these cases that the cough arose from such a cause. The patient had a very elongated uvula, but as she was not supplied with a mirror, he had not examined the naso-pharynx.

Mr. ATWOOD THORNE asked if the case could be shown again. Both nostrils were blocked and there was nasal discharge. In his opinion it was simply a case of atrophic pharyngitis due to discharge from the nose, not a case of ozæna.

Dr. SMUTHWAITHE said both nostrils seemed to be blocked, and the patient during the night was probably a mouth-breather; if

the nose were treated, he thought the pharyngitis would gradually disappear.

Sir FELIX SEMON endorsed the opinion given by Dr. Powell on the condition of the pharynx. He did not examine the nose because Dr. Davis told him the point of interest in the case was the pharynx only. He had no doubt of there having been a broken-down gumma on the posterior wall of the pharynx, and they were now seeing the results of it.

Dr. PEGLER said there was an obstetric history of some importance—the woman was married and had six children; the eldest was dead, and she had had two miscarriages. He thought it a case of tertiary syphilis.

Dr. DAVIS said at first the appearance struck him as that of an old healed ulcer, but he thought the two bands were too symmetrical. The patient never had a sore throat or complained of her throat, and it was impossible that so great a surface of ulceration could have existed without the patient being aware of it. The cough had persisted about eight years and nothing had ever done it any good. On looking at the nose, there was hypertrophy of both turbinals, and simple chronic pharyngitis had resulted, which gradually became atrophic, and the resulting condition was now to be seen. There was in his opinion nothing in the atrophic condition which could not be due to extreme atrophy of the mucous membrane. Many suggestions had been made with regard to the treatment—he did not think it could be cured with iodide of potassium.

Dr. DAVIS showed a *Case of Globular Swelling of the Right Side of the Larynx in a Man aged Twenty-nine, for Diagnosis.*

The patient was shown at this Society last April, 1903, and notes of the case and the discussion thereon were printed in the *Proceedings* of that date.<sup>1</sup>

The tumour was certainly a little larger, and it now gave rise to some dysphagia, and for seven years the patient had been hoarse. There were no other symptoms. As the patient had some physical signs in the chest, and there was a tubercular family history, the exhibitor was inclined at first to think the condition tuberculous, but it was evidently not this nor sarcomatous (which was the opinion shared by several members), as the condition of the larynx was practically unchanged. He was now inclined to think the tumour was an adeno-fibroma, which he believed was the opinion expressed by Mr. Waggett last year. It was too soft for an enchondroma

<sup>1</sup> JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, vol. xviii, p. 365.

and too vascular, as members would remember that when the growth was punctured with a rectangular palate-needle hæmorrhage was profuse. The patient had not been attending the hospital for twelve months.

The opinion of members at the first meeting was against any operative interference.

Mr. SYMONDS said not only was the diagnosis important, but suggestions for treatment were required. Was it getting larger, and was there greater difficulty in speaking?

Sir FELIX SEMON reminded the Society that he had shown a similar case, which had been reproduced with an illustration in the *Proceedings*, and opinions on which had diverged extremely at the time. It had remained *in statu quo* and the patient had been unwilling to have any operation. When reading the latest edition of Paul Bruns' 'Surgery of the Larynx,' he came across an absolutely analogous case. The author performed an external operation; the whole thing shelled out, and was found to be fibromyolipoma. Considering that the outlines of the larynx in this man were so well preserved, although much thickened, he thought it was likely to be something of the same kind.

Dr. LACK had seen a very similar case under the care of one of his colleagues. Thyrotomy was performed, and the tumour turned out to be a fibroma. He thought this was a simple tumour, whatever its exact nature might be.

Dr. FITZGERALD POWELL would not offer an opinion as to the character of this growth, but evidently it was benign. He could not understand the reason for keeping such growths *in situ*, and not removing them by operation before they began to cause trouble by their size and pressure. He remembered the case shown by Sir Felix Semon in which the growth was somewhat similarly situated, and on pressure caused severe retching. He wondered then why he had not removed it, though Sir Felix explained that the patient was very nervous and that the growth was doing no harm, and he did not think it advisable to remove it. He certainly thought in Dr. Davis's case that a thyrotomy should be performed, when the growth would be found to shell out easily.

Mr. SYMONDS remarked that the Society seemed agreed that this was an encapsuled growth, and as to its exact nature there was room for doubt. What was the best way of attacking it? He thought a sub-hyoid laryngotomy would do less damage and be quite sufficient to enable one to obtain full access.

Mr. WAGGETT said its situation was such that it would be readily

got out by thyrotomy. It was an operation of very slight consequence, and he would suggest its performance in this case.

Dr. DAVIS said it had become a little larger than formerly. There was no trouble beyond aphonia and hoarseness, and inconvenience in swallowing. The man did not come up for treatment, and so far he was perfectly safe, though the breathing might at any time be seriously interfered with if it became larger. As regarded his opinion on its nature, first of all he thought it a case of phthisis, as there were physical signs of consolidation, but for the past year there had been no change at all in this condition. He was inclined to think it was what Mr. Waggett suggested, a simple adenomatous tumour. It was hard in parts and soft in others. It was impossible to remove a piece because the swelling was so round that no forceps would get hold of the tissue.

Dr. ADOLPH BRONNER showed a *Case of Angioma of Left Maxillary Antrum*.

The patient, a woman aged sixty, complained of left nasal obstruction for two or three weeks and occasional slight hæmorrhage. A grey irregular mass occluded the left nostril. On partial removal there was severe hæmorrhage. The growth was soft, and through it a bent probe could be passed into the antrum. It had every appearance of a malignant growth.

*Report of Clinical Research Association.*—"The substance of this tumour is so thickly permeated with capillary vessels that it may be called an angioma. The vessels are very thin-walled, and are embedded in myxomatous tissue like that of a gelatinous nasal polypus. On the surface of the growth there is a thick coating of granular exudation."

Mr. SYMONDS asked whether the case was still under treatment or whether it was proposed to undertake any larger operation.

Dr. BRONNER said he intended to open up the antrum, scrape it, and remove the growth.

Dr. SCANES SPICER showed a *Case of Soft Vascular Growth ("Bleeding Polypus") attached to Cartilaginous Septum Nasi in a Woman aged thirty-eight; Recurrence Six Weeks after Removal (Section of Growth)*.

Dr. Scanes Spicer was informed there had been recurrent epistaxis for seven months, starting whenever the nose was touched. Patient had been told she had a polypus, and it was removed in the provinces about six weeks ago. Symptoms recurred, and the mass became larger than ever; it was now the size and shape of a



large frock-coat button, and almost entirely obstructed the left nostril. The surface lobulated and bright red, and suggested a raspberry. The base sessile, but with a very limited attachment to septal cartilage about its centre. A small portion was cut off for histological examination. Very free bleeding; stopped with cotton-wool plug and pressure.

Prof. Wright and Dr. John Broadbent reported the growth to belong to the malignant group, and that the histological structure showed angeiomatous, sarcomatous, and fibromatous tissue.

The treatment proposed was free excision, curettement of site of attachment, and galvano-cautery after freely applying a wad of adrenalin and cocaine.

Dr. GRANT recommended a further removal and scraping followed by galvano-cauterization of the base of the growth. This procedure was very successful in many cases. It certainly was in the case of a patient whom he treated and saw a number of years ago along with a distinguished member of the Society. In this the pathologists had reported the presence of sarcomatous elements, but the treatment adopted resulted in complete absence from recurrence.

Dr. PEGLER said that in spite of the sarcoma-like appearance under the microscope of some cells, he thought they might safely banish the idea of malignancy even of a low grade from their minds. In his opinion it was a fibro-angeioma of the septum. He should feel glad if Dr. Spicer would refer a slide to the Morbid Growths Committee.

Dr. SCANES SPICER said he was going to remove the growth again, scrape the base and apply the galvano-cautery.

Dr. SCANES SPICER showed *Specimen of Growths (with Microscopic Slides) from a Case of Chronic Antral and Ethmoidal Disease, for Diagnosis.*

Dr. Scanes Spicer removed these growths from a woman aged fifty. She had suffered for many years from chronic nasal obstruction with recurrent bouts of acute head colds, profuse watery rhinorrhœa, and sometimes purulent discharge. These attacks were attended with severe headaches, which prostrated her for days together. In general condition she was thin, anæmic, and highly sensitive—in fact, worn out by her recurrent attacks.

In September, 1903, after a rather longer attack than usual, she was found to have a marked swelling of the cheek, due to an expansion of the bone over the right maxillary sinus. The right middle turbinated body was represented by a large, thick

fleshy mass filling the upper part of the nose, between which and the outer wall bright yellow gummy fluid and opaque pus escaped. Transillumination showed blackness over antral region of right cheek, as compared with unusual translucency elsewhere, including frontal sinus region on both sides. Removal of the diseased middle turbinated mass, exploration of antrum, removal of any disease found there, and free drainage into nose were recommended. This was consented to. The antrum and ethmoidal cells were crowded with masses like ordinary polypi. These were evidently under pressure, as they sprung outwards when the middle turbinated ledge was removed and when the antrum was opened. Besides the polypi were large flakes and plugs of putty-like semi-solid matter resembling that seen in cholesteatoma, and other hard, solid yellow masses like pieces of dry gum arabic; also masses of curdy granular pus. The ethmoidal and antral masses seemed identical in character and continuous. At the time of operation the *debris* and gummy masses completely filled a 1-oz. stoppered bottle, and the polypi (of which over eighty were counted) more than filled another. Recovery was uneventful and satisfactory, and was followed by subsidence of all the symptoms and distress.

In April, seven months later, her medical adviser reported that though she had had a severe catarrh, none of the antral symptoms nor general distress had recurred, and that she had no symptoms of antral disease at all. The patient was in the tropics, and personal rhinoscopic examination had not been made by Dr. Scanes Spicer.

Clinically the case, though a very severe and long-standing one, could hardly be said to have any extraordinary features; but the point of interest was—what was the nature of these tumours? The expert report stated sarcoma-endothelioma. Clinical experience showed that in many of the growths removed in these chronic antral cases the histological report suggested a treatment and prognosis utterly at variance with the future clinical history. Opinions were solicited as to what weight was to be attributed to the microscopical appearances in this case.

The growth was largely made up of a fibrinous network, embedded in which were round cells with one or more nuclei. Some of these cells occupied separate spaces, others were in extensive clusters and had become polygonal in outline from mutual pressure. Islands of inflamed fibro-periosteum were seen studded with cells, rounded and elongated in shape, and much smaller than the clusters above described. No vessels could be seen in this growth, either embryonic

or fully formed. In many places the tissue resembled cedematous granulations, but the large cells with prominent nuclei were too big to be regarded as leucocytes, and they were inclined to regard them as sarcomatous in origin.

A further section of several pieces of growth confirmed the diagnosis of neoplasm, and they were inclined to regard the cells composing it as belonging to the type of sarcoma now called endothelioma.

Mr. WAGGETT said the microscopic appearance was very interesting, and he thought the Morbid Growths Committee should ask for the slide.

Dr. SPICER said he was perfectly willing to present the Morbid Growths Committee with the two slides.

Dr. SCANES SPICER showed the *Specimen and Microscopic Slide from a Case of Epithelioma of the Soft Palate*.

Man aged eighty-four. Free excision ; recovery ; freedom from recurrence and perfect comfort for three months ; later recurrence in side wall of pharynx and cervical glands.

The growth was an epithelioma which started on the oval aspect of the soft palate. There were numerous cell-nests and much round-celled infiltration in the neighbourhood of the ingrowing processes. The naso-pharyngeal surface showed much leucocytic infiltration deep to the columnar epithelium, and in this there were one or two cystic spaces lined by proliferating columnar epithelium, and the cells there had in a few places destroyed the integrity of their basement membrane and appeared ready to proliferate in a centrifugal manner.

The tiny fragment to be specially reported upon was made up largely of muscle, fibrous tissue, and mucous glands. The surface epithelium was columnar, and deep to it is a broad layer of infiltrated submucosa, but there were no cancer cells in this tissue. But lying free from it there was a mass of malignant epithelial cells.

Dr. FURNESS POTTER showed a *Case of Infiltration of Left Arytenoid Region*.

The patient was a man aged sixty-two, with a history of syphilis contracted forty years ago, and with cicatrices on the palate and pharynx. When seen in March last a large swelling was observed in the left arytenoid region extending to the aryepiglottic fold, which obscured the posterior part of the left cord, and considerably

hampered its movement. There was some difficulty in swallowing, but no pain, and no enlarged glands were detectable. The patient stated that his throat had begun to trouble him in September last. He had been taking iodide of potassium and perchloride of mercury for some weeks previous to being seen by exhibitor. On April 7, owing to a sudden increase in the laryngeal swelling, the breathing became embarrassed to such an extent that tracheotomy was performed. The swelling, which rapidly subsided—the tube being removed on the ninth day after insertion—was obviously an attack of acute œdema: the urine examined from time to time showed small quantities of albumen. The chronic swelling in the arytenoid region remained unaltered. The question was, was this to be regarded as a syphilitic lesion? Anti-syphilitic treatment had had no appreciable effect, and since the attack of œdema had not been resumed. The case was shown in the hope of obtaining the opinion of members as to the nature of the infiltration.

Dr. GRANT said the question of the ill-effects of iodide of potassium had been raised in this case. The man seemed to think he was gradually getting better. That would support the idea that it was specific rather than malignant, if there was any suspicion of that sort.

Dr. POTTER said the man had had a long course of iodide of potassium and perchloride of mercury, and had been under observation for a considerable time. He did not think there was any diminution in the size of the infiltration. In view also of the chronic albuminuria from which the man suffered, and owing to the fact that he had had an attack of acute œdema of the larynx necessitating tracheotomy, he hesitated to resume the administration of anti-syphilitic remedies.

Dr. HERBERT TILLEY showed a *Case of Extensive Lupus of the Nose (cured), Palate, Pharynx, and Epiglottis.*

The patient, a female aged fifty-four, was shown in order to elicit the opinion of members of the Society as to how far any local treatment was advisable.

The patient was referred to him a month ago by Dr. Radcliffe-Crocker with a view of improving the throat condition by operative interference, but since that time the patient had been in the country and her general and local condition had much improved. In particular the breathing was quite comfortable, whereas a month ago it was a question whether a laryngotomy would not be advisable because of the difficulty of inspiration.



Mr. SYMONDS raised the question whether this was lupus ; it was scarcely so hard, lumpy, and cicatricial-looking as ordinary cases of lupus. From the point of view of open-air treatment, tubercular cases were rather more hopeful than the ordinary lupus cases. This case had altered in character and seemed improving.

Dr. THOMSON suggested the great advantage of the galvano-cautery in these cases. He had several cases of lupus of the palate, pharynx, and larynx under observation, and he was very much struck by the way in which they were healing up under the galvano-cautery. He had two cases in hand at the present time, which he purposed showing to the Society, as he possessed drawings of what their condition was before treatment three or four years ago. They were now completely healed.

Sir FELIX SEMON had no doubt as to the case being one of lupus, not only on account of the appearances on the mucous membranes, but also because the external manifestations had been present for years. When he saw the case some weeks ago, the changes in the pharynx and larynx were absolutely characteristic. The patient was now better than when he had seen her. Such temporary improvements were in his experience not very uncommon in lupus. As regards the use of the galvano-cautery in such cases, he wished to mention that one might get very good results indeed. He had shown many years ago the case of a woman to the Clinical Society in whom there was more extensive lupus of the larynx than in this man, and which was ultimately quite cured by means of the galvano-cautery. However, one required an enormous amount of patience in treating these cases, as no doubt Dr. Thomson would duly experience. When one thought one had effected a cure, one would have to begin again owing to recurrence. Personally in this case of his own he would have given up treatment if the patient, who had more confidence in it than he himself had, had not begged him to continue. The ultimate result justified the continuance, for the larynx was got into a condition which he would not have believed possible when he began treatment. He met the patient fifteen years afterwards at the seaside, and her voice was better than at the time of his demonstrating the case before the Clinical Society. Therefore, if one was prepared to spend the necessary amount of time, encouragement could be held out to treatment by the galvano-cautery.

Dr. HERBERT TILLEY thanked members for their suggestions, and hoped it might be possible to carry them out ; the chief difficulty would be the length of time necessary to produce much effect with the galvano-cautery.

Dr. DAVIS showed a *Case of Partial Paresis of Soft Palate; Paralysis of Left Cord.*

The patient was a cabman, aged forty-eight, and he had been for fifteen years in the United States Mercantile Marine.

He complained of headache, regurgitation of fluids through the nose, general weakness and wasting of the muscles of the right arm, slight cough and hoarseness.

There was complete fixation of the left cord in the middle line, but the voice was not appreciably altered—it was husky and high-pitched, and that he had noticed for six months only. The pupils were unequal, and the knee-jerks exaggerated. The face was somewhat expressionless and the patient a little confused. The pulses were unequal, the left being retarded, but there were no physical signs of aneurysm or of any mediastinal growth (the patient had not been examined by the X-rays), and the heart beats were very feeble.

The patient had been a man of fine physique, but he had wasted considerably, and he walked with the body bent forward. Dr. Davis thought the case was specific, though the patient was no better under treatment, but the nature and site of the lesion was at present obscure. He asked for the opinion of members on the case.

Patient wrote of himself:—"I am very undecided and absent-minded, and at times when I am reading I read the lines of reading over and over again and fail to understand what I am reading about, especially at the spring and fall of the leaf. I am given to dropping small things, especially bread and butter, when I sit down to eat my food. My finger nails are always breaking short, and I am getting weaker. I have violent pains in the head, and I am exhausted on the least exertion, and I have palpitations of the heart."

The handwriting of the patient was firm and decided, and there were no tremors of the hands.

Dr. HALL said from an examination just carried out hurriedly there was a difference in the pupils and in the pulse. Before excluding aneurysm a careful examination of the chest should be made, and also with the screen. That would not account for the other manifestation, but so far as the vocal cord was concerned he understood Dr. Davis to say he had not made a final diagnosis, but suspected aneurysm.

Mr. SYMONDS said one point had specially interested him, and that was the difference in the voice in these cases of paralysis from

pressure in aneurysm and in paralysis from malignant disease of the œsophagus. He had often noticed a very striking difference in the voice, which was high-pitched.

Dr. GRANT said the man complained of headache and some affection of the palate, which did not act well. Liquids came back through the nose. This paresis might be a manifestation of, or produced by, some syphilitic lesion in the cranium. In his opinion, the indications of a correct diagnosis pointed to that direction rather than to the chest.

Dr. DAVIS said that it was unfortunate that his other case of a man with pulsating aneurysm and fixation of the left cord was not present for comparison. In the man with aneurysm the voice was extremely hoarse and loud and gruff, but this man, who had the same amount of paralysis precisely, talked perfectly well except for his high-pitched voice. The healthy cord seemed to move across in both cases, but in this man one would not think at first of looking at the cords. He examined the chest very carefully and thought there was no aneurysm; the heart was not enlarged or hypertrophied, though the pupils and pulses were asymmetrical. There was nothing else to lead one to think of aneurysm. He suffered from paresis of the palate, and fluids came back through the nose. In addition, there was weakness down the right side and wasting of the muscles of the arm. It is possible that he might have an aneurysm as well as other trouble—he could not make a diagnosis himself.

Dr. J. DONELAN showed a *Case of Tumour of Palate in a Woman aged thirty-four.*

The patient had suffered from carious teeth, especially at the right side of upper jaw, and appeared to have had attacks of antral inflammation, the right antrum being darker on transillumination than the left. There was no nasal discharge, and but little obstruction. The tumour was noticed first about fourteen months ago by Dr. Lavery, of Swindon; he punctured it under cocaine anaesthesia, but no fluid came away. The puncture was made near the middle line, as the tumour then extended over the raphe to the left side. It was a rounded flat growth occupying the greater part of the right side of the velum and extending for about half an inch over the hard palate. The exhibitor desired opinions as to the probable nature of the growth and the treatment.

Mr. ATWOOD THORNE considered it was a chronic abscess; it seemed to fluctuate quite easily on exertion. In his opinion it was due to carious teeth.

Mr. PAGET said that this tumour probably was encapsuled, and could easily be shelled out. It was a curious fact about tumours of the palate that they could get to a very considerable size without being noticed. One could not go about with an abscess in the palate and not notice it for fifteen months. He thought it would be found under the microscope to be a very mixed cell-growth, like the tumours of the parotid region, composed of mixed tissue recalling the involution theory of new growths. With a finger behind the soft palate and a raspatory probably it could be easily shelled out and would never recur.

Dr. GRANT said no doubt many of them had read a very interesting paper by Mr. Paget on the subject of growths in the palate. He had seen two growths of the mixed nature referred to by Mr. Paget, but they were further back and rather in the substance of the soft palate. This was a suspicious-looking growth, and its vascularity rather suggested it might be of the nature of a sarcoma.

Dr. FITZGERALD POWELL thought obscure fluctuation could be made out. He thought it might be an abscess. He would suggest Dr. Donelan putting a needle into it—he understood from him that he had not yet done so. Probably an experimental puncture would solve the question.

Mr. DE SANTI said he had elicited from the patient the fact that an exploratory puncture had been made with negative results. He was of the opinion of Mr. Paget that the swelling was a tumour of a mixed character and could easily be removed.

Dr. DONELAN said he had found on further inquiry that the growth had been punctured by Dr. Lavery, of Swindon, under cocaine, and that no fluid came, but that the growth had become smaller near the site of the puncture. He intended to follow the course suggested by Mr. Paget, and hoped to communicate the result to the Society.

Mr. SYMONDS asked if it involved the posterior wall.

Dr. DONELAN said the case was not under his care, and he had seen it only once, a week ago. He understood then that no puncture had been made, and that the tumour was considered to be a sarcoma. As he did not feel justified in immediately undertaking any operation he referred the case to the Society. On posterior rhinoscopy a corresponding swelling could be observed.

Mr. DE SANTI showed a *Case of Paralysis of the Left Vocal Cord in a Man aged sixty-seven.*

Mr. de Santi showed a man aged sixty-seven, with paralysis of



the left vocal cord. He had been seen by him for the first time the day before, and was found to complain of hoarseness and dysphagia of five weeks' duration. He had also lost much in weight.

On examination the left vocal cord was found to be paralysed, but otherwise the larynx was normal. No glands or tumour were to be felt in the neck, and the diagnosis seemed to rest between aneurysm of the aorta and malignant disease of the œsophagus. Until the patient had been radiographed Mr. de Santi did not intend to pass an œsophageal bougie. Examination of the chest by one of his colleagues had been negative.

Dr. HALL said Mr. de Santi had promised to send the patient to him under his care at the Westminster Hospital. He would examine him with the aid of the X-rays, and report later on. The radial pulses were unequal.

Examination of this patient by means of the X-rays subsequent to the meeting revealed well-marked dilatation of the transverse and descending arch of the aorta.

MR. DE SANTI showed a *Case of Bilateral Hæmatoma of the Septum Nasi*.

The patient, a child aged six, had a severe fall on the nose a week or ten days before being seen by Mr. de Santi. On examination some external swelling and tenderness of the nose was felt, and both anterior nares were found blocked with bright red swellings, evidently connected with the septum. The case had been seen by Mr. de Santi the day before the meeting, and would have been treated by incision of the swellings, but he thought the members of the Society might be interested to see the case, and so had decided to defer incision until after the meeting.

Dr. GRANT said suppuration was already taking place, and advised this should be opened with as little delay as possible. The pain in the swelling had considerably increased within the last few days. It was over a fortnight since the accident happened. The sudden change he considered due to suppuration. The patient's health was rather disturbed, and the large gland under the maxilla might suppurate.

Subsequent to the meeting the hæmatoma was incised: there was no pus evacuated, only sanious non-purulent fluid.

Dr. BENNETT showed a *Case of Post-pharyngeal Swelling*.

A. W—, aged nineteen, maker of brass instruments, was seen first in January, 1904, on account of obstructed nasal respiration. The difficulty of breathing through the nose had been coming on

gradually for more than six months, but there had been no other symptom. The posterior wall of the pharynx, especially on the right side, was pushed forward, so that the passage into the nasopharynx was largely obstructed. The swelling was punctured and pus escaped, though not in large amount. The tissues cut seemed crisp, suggesting the presence of enlarged glands only partially broken down. The progress was slow, but gradually, after several weeks, the swelling materially lessened in size. Very little discharge escaped, and the patient was not seen for four weeks. On May 4th, on examination of the larynx, it was found that there was a considerable swelling of the pharynx at the level of the larynx, especially on the right side, and extending also to the tissues of the larynx externally. There seemed also to be some swelling of the interior of the larynx, but it was difficult to obtain a clear view of this. Most probably the trouble was due to the slow breaking down of tubercular glands, with possibly some tubercular infiltration of the larynx itself. The general health was excellent, and examination of the lungs had not revealed any signs of tubercle.

Dr. GRANT thought this one of the most interesting cases brought to their notice, and he hoped members would give their views with freedom about it, late though the hour was. Speaking offhand, he was inclined to think of sarcoma. There seemed to be very considerable infiltration round the larynx, and with the aid of a rhinoscopic mirror one could see a large amount of red fleshy-looking tissue. There was, in his opinion, impaired mobility of the right vocal cord, which opinion he would like to hear corroborated. He thought it an infiltrating malignant growth.

Dr. HERBERT TILLEY thought the swelling was of the nature of a chronic abscess, and possibly due to suppuration in a deep cervical gland, and might be of tubercular origin. He thought that it could only be thoroughly dealt with by an external operation, incision being made behind the sterno-mastoid muscle, and the abscess being approached behind the sheath of the large vessels (Chiene's operation).

Sir FELIX SEMON said he saw the right vocal cord move. Dr. Bennett had asked him to examine the patient, but he was not prepared to say what the swelling on the posterior wall of the pharynx was. It extended to the right side of the larynx, and was particularly visible near the processus-vocalis of the right arytenoid cartilage, but behind that swelling the right cord moved distinctly.

He was not inclined to view this as a new growth, and he suggested that Dr. Bennett should have a swab taken and examined

both microscopically and bacteriologically. The idea in his mind was that there was some infection there which had caused the swelling rather than a new growth. Until a swab was taken he would not recommend the heroic procedure advised by Dr. Tilley.

Mr. SYMONDS said he had seen three conditions like this in grown persons. One was a case of gumma which went away entirely, the second proved to be tuberculous, and the third was in a young woman which protruded forward. They opened it, and got down ultimately on the spine—probably a case of spinal disease. He did not think this fluctuated, and there was accordingly no necessity for external operation. He was inclined to consider it a form of tubercular infiltration rather than anything else. In the middle line there was an aperture in which was some pus. The appearance suggested a granuloma to him.

Dr. FITZGERALD POWELL said he was inclined to agree with the opinion expressed by Dr. Tilley. He thought the case was one of "post-pharyngeal abscess," which had been partially evacuated. He noticed a wound at the upper part of the inflammatory swelling, and understood it had been opened by Dr. Bennett.

Dr. BENNETT, in reply, said that after incision of the swelling, ten weeks ago, little discharge escaped. However, it gradually subsided to its present condition, and the patient was not seen for some weeks. Two days ago the swelling was found to extend down to the level of the larynx, and there seemed to be a slight degree of infiltration of the laryngeal tissues. He thanked members for the suggestions as to treatment, which he would carry out, and he would report on the case at a later date.

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## CORRESPONDENCE.

LARYNGOLOGICAL SOCIETY OF LONDON.

20, Hanover Square, London, W..

May 6, 1904.

*To the Editor of the "Journal of Laryngology, Rhinology, and Otology."*

DEAR SIR,—The enclosed proposal is being submitted to all the Laryngological Societies. With a view of bringing it under the notice of those who may not be members of such Societies, but who may be desirous of assisting in carrying through the proposal, we shall esteem it a favour if you would publish the accompanying letter in your esteemed journal at the earliest possible date.

We are, dear sir, yours truly,

E. FURNESS POTTER, M.D.

PHILIP DE SANTI, F.R.C.S.,

Honorary Secretaries.

20, Hanover Square, London, W.,

May 6, 1904.

*To the President.* SIR.—We are directed by the Council of the Laryngological Society of London to invite the attention of your Society to the fact that Senor Manuel Garcia—the inventor of the laryngoscope—will attain (D.V.) his hundredth birthday on March 17, 1905.

The Council also beg to point out that 1905 will be the jubilee year of the laryngoscope, Senor Garcia's paper on the subject, read before the Royal Society, having been published in 1855. It is proposed to celebrate the Centenary, first by presenting Senor Garcia with his portrait, to be painted by Mr. John Sargent, R.A., and secondly by a festival dinner. The Laryngological Society of London will also present Senor Garcia with an illuminated address, and have no doubt that other Laryngological Societies will do the same.

It will give the Laryngological Society of London much pleasure if the members of your Society will join them in the celebration, by giving subscriptions towards the presentation and by gracing the occasion and dinner by their presence. It is the hope of the Laryngological Society of London that many foreign Laryngological Societies will be represented by deputies, and, in the event of this hope being realised, it is their intention to hold a special meeting on that occasion.

We shall, therefore, esteem it a favour if you will be good enough to make known the proposal to your Society, and shall be glad if you will kindly submit to us at an early date the names of such members as may signify their intention to be present, in order that the necessary arrangements may be made. It will perhaps be most practical if your Society will take in hand the collection of subscriptions within your radius of activity, and will send the amount, after completion, to our treasurer, Mr. W. R. H. Stewart, 42, Devonshire Street, Portland Place, London, W.

It has been decided not to limit the individual subscriptions. The names of the subscribers—not the amount of the subscription—will be stated in the list which is to accompany the presentation portrait, as it is felt that it will be desirable that practically every laryngologist in the world should contribute by a subscription, however limited, towards a testimonial to be presented to the venerable inventor of the laryngoscope on this truly unique occasion.

Hoping to hear from you at an early date that our proposal has been favourably received by your Society.

We have the honour to be, sir,

Your obedient servants,

E. FURNESS POTTER, M.D.,

PHILIP DE SANTI, F.R.C.S.,

Honorary Secretaries.

## Abstracts.

### FAUCES.

**Trétrap (Anvers).**—*The Role of the Tonsils in Infective Conditions.* "La Presse Otolaryngologique Belge," April, 1904.

The tonsils form a common portal of entry into the system for a variety of pathogenic germs. The local lesions are often inconsiderable



and transient, and may be disappearing when lesions at a distance are in full pathologic activity.

In the case of tubercle bacilli the primary lesion may be scarcely noticeable, while the secondary glandular infection is accompanied by marked symptoms. A girl aged fourteen of the tuberculous type, but in whom no sign of tubercle had previously appeared, had an attack of tonsillitis which followed the usual course and soon subsided. The lymphatic glands on one side of the neck then gradually swelled and threatened to break down, and were removed by operation. Under the microscope tuberculous lesions were found in the extirpated glands, and guinea-pigs inoculated with the pulp were infected with tuberculosis. The tonsil may be the starting point also of various other infections. The author quotes a rare case recorded by Heubner ("Deutsch. Med. Woch.," August 13 and 20, 1903) of fatal general infection with *oidium albicans* of tonsillar origin in a child aged sixteen months.

In view of the possibility of serious infections through the tonsils, the author advocates the immediate use of antiseptic methods for the mouth on the least sign of sore throat in delicate persons, also local applications of iodine to the tonsils; and he advises removal of the tonsils when affected with recurrent acute attacks or with chronic enlargement.

Chichele Nourse.

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## NOSE, NASO-PHARYNX, AND ACCESSORY SINUSES.

**Foucher.**—*Interstitial Injections of Paraffin for correcting certain Deformities.* "Montreal Medical Journal," January, 1904.

Foucher reports two cases recently operated upon by him, both being cases of nasal deformity. Photographs being taken before and after treatment, and enlarged by magic lantern, show the details of the deformity, and the perfect correction through paraffin injections.

Price Brown.

**Leon E. White.**—*Resection of the Nasal Septum with Report of Fifteen Cases.* "Boston Medical and Surgical Journal," April 21, 1904.

This article is the result of two years' work by a new method of operation, described originally by Otto Freer. The advantages given by the author are: (1) Accuracy; (2) Splints are not needed; (3) Rapid recovery; (4) Lack of pain; (5) Short after-treatment; (6) Freedom from sepsis; (7) Free respiration in forty-eight hours; (8) Applicability to both bony and cartilaginous deflections; (9) Creation of utmost possible space; (10) Lumen of concave side is never lessened. The objections are: (1) Adaptability to a limited number of cases; (2) Long and tedious operation; (3) Difficult operation; (4) Hæmorrhage.

The operation and the special instruments needed are fully described. It consists essentially in making a vertical incision anterior to the deflection with, in extensive deflections, a second parallel to the nasal floor and meeting the base of the former cut. The muco-perichondrium is then dissected up and rolled upwards. The cartilage is incised and the mucosa on the concave side separated, and the denuded cartilage removed by cutting forceps. As much of the septal bone and cartilage as is necessary having been removed, the flap is replaced and adjusted with sutures,

passed by special strong curved needles. The nose is cleansed and packed with cylindrical plugs on the side from which the deviation has been removed. The concave side does not need packing. In forty-eight hours all packing is removed. *Macleod Yearsley.*

**Wiener, Joseph.**—*Operation for Congenital Saddle-nose by the introduction of a Celluloid Plate.* "Med. Record," April 16, 1904.

The author made an incision one quarter of an inch long in the median line in the under surface of the nose. Through this small incision a subcutaneous flap was made over the depressed bridge of the nose. A piece of celluloid an inch long, one half-inch wide, and one-thirtieth of an inch thick after sterilisation was introduced through the incision and pushed upwards to occupy the space made by the subcutaneous flap. It was then moulded into proper shape, and the original incision was closed by one suture.

The author speaks highly of the result obtained, and recommends the procedure. *W. Milligan.*

**Percy Fridenberg.**—*The Necessity for Supplementary Measures after the Removal of Adenoids.* "Archives of Pediatrics," April, 1904.

The author points out that nasal respiration is by no means automatically established after the removal of adenoids. He insists upon the necessity of coaching the child in nasal breathing, teaching it breathing exercises, ordering cold sponges, and plenty of open-air exercise. Thorough and prolonged mastication, even to "gum chewing" is recommended. Finally, it may be necessary to close the mouth at night. The dentist's aid should be called in to prevent overcrowding of teeth and malformation of the jaw. *Macleod Yearsley.*

**Gruening, L.**—*Orbital Cellulitis; Empyema of the Ethmoid Cells and the Frontal Sinus; Abscess of the Frontal Lobe; Pneumococæmia; Death.* "Medical Record," February 6, 1904.

The patient, a male aged twenty-six, was admitted into hospital with swelling of both eyelids upon the left side, impaired mobility, and downward and forward displacement of the eye. The left pupil was slightly larger than the right. Marked tenderness was found to exist over the frontal bone, but not over the frontal sinus. There was a left-sided nasal discharge. Temperature 103·8° F.; pulse 76; respiration 26.

An incision was made along the upper and inner orbital margin, when the periosteum of the os planum and of the roof of the orbit was found to be softened and perforated at several points. The ethmoidal cells were found to be full of pus. The frontal sinus was opened from the orbit and found to contain pus, polypi, and an exostosis. After cleansing the cavity was packed with gauze. Practically no improvement resulted. It was decided to explore the interior of the cranium. This was accomplished by an extension of the original operation. Upon exposure of the dura pus was found to well up through a perforation upon the under surface of the left frontal lobe. This opening was enlarged and was found to lead into an abscess cavity within the substance of the brain. After evacuation of pus and shreds of broken-down brain-tissue, drainage was effected by strips of gauze. Coma, however, supervened, and death resulted. No autopsy was allowed.

*W. Milligan.*

## LARYNX.

**W. W. Keen.**—*A Case of Total Laryngectomy (unsuccessful), in which Massage of the Heart for Chloroform Collapse was employed.* "The Therapeutic Gazette," April 15, 1904.

The patient was a man, age not given, who developed squamous epithelioma of both vocal cords. A partial laryngectomy was performed on December 16, 1902, from which he recovered. Total laryngectomy was performed on February 6, 1903. Death ensued from chloroform collapse at the end of the operation. The abdomen was opened and the heart massaged for half an hour by the hand introduced into the wound, without effect. The whole subject of heart massage in such cases is discussed fully.

Macleod Yearsley.

**L. Revol (Lyons).**—*A Case of Bilateral Paralysis of the Inferior Laryngeals due to Aortic Aneurysm.* "Annales des Maladies de l'Oreille, du Larynx, du Nez, et du Pharynx," February, 1904.

A man aged fifty-eight, by trade a mattress maker, was admitted to hospital July 10, 1903, suffering with aphonia, sometimes better, at other times worse. His general condition was good, save that he thought he was wasting. Examination of the lungs revealed harsh inspiration, expiration prolonged and slightly blowing with scattered rhonchi, predominating at the bases and under the axilla of the left side.

The right subspinous fossa was a little depressed, and at this level there were some signs of induration. Expectoration was sero-mucoid and rather copious. Cough frequent and muffled, devoid of barking character. Voice equally inaudible, hoarse, but not bitonal. There was no true dyspnoea, but there was pseudo-dyspnoea consequent upon the exaggerated expenditure of air during speaking: when this ceased the breathing became normal.

About the heart there was nothing much to note. Cardiac dulness normal, apex beat in fifth interspace a little inside the nipple line. No bruit present. The first aortic sound was a little rough. Pulse regular, no asynchronism. Digestion functions normal, but patient experienced a sensation of arrest of food on swallowing at the level of the mid thoracic region, lasting sometimes several hours. No regurgitation or vomiting.

A laryngoscopic examination showed the cords to be fixed in the cadaveric position, the glottis was always open and resembled an elongated triangle with slightly curved margins.

During respiration very slight adduction and abduction were noticed, due to the passage of inspired and expired air.

On phonation the inter-ligamentous glottis remained stationary, the inter-cartilaginous became slightly narrowed; no laryngeal vibration.

Radioscopy allowed one to observe a shadow elongated transversely above and passing to the right border of the sternum.

By oblique examination the shadow appeared in the anterior mediastinum: the posterior was clear. Lungs clear except the right apex, which was dark. Heart seemed normal.

M. Destot, who undertook this examination, concluded that there was a cylindrical dilatation of the aorta involving its ascending and transverse portions.

January 26, 1904, the patient was suddenly seized with a violent fit of coughing, and, after rejecting about a litre of blood, expired.

The author says that in this case we had the complete picture of

bilateral recurrent palsy. There were the trio of symptoms present, viz. aphonia, absence of dyspnoea, and leakage of phonatory air, and the laryngoscopic investigation gave unequivocal evidence, but to discover the cause of the paralysis was more difficult; here radioscopy came to the rescue, and through it a correct diagnosis was arrived at.

Clayton Fox.

## EAR.

**A. J. Brady** (Sydney).—*A Case of Temporo-sphenoidal Abscess of Otitic Origin.* "Australasian Med. Gazette," April, 1904.

H. C.—, male, who had suffered from left middle-ear suppuration for five weeks, was admitted to hospital in a semi-conscious condition: pulse 52; respiration 11; temperature 98.4° F.

A radical operation and intra-cranial intervention were decided upon. The usual method of operating was adopted. On opening the antrum pus welled up. The roof of the attic and tympanum was removed and the overlying middle lobe explored with a needle and syringe, with the result that a large quantity of pus was withdrawn. The dura was then incised and a Simms' forceps introduced along the needle, when the blades of the forceps were separated one ounce of pus escaped. The abscess cavity was cleaned out with strips of gauze and a rubber drainage tube subsequently inserted.

After the operation there was a marked improvement in the condition of the patient, but he still, however, remained restless, complained of headache, and the slow pulse persisted.

An examination of the left eye revealed marked hyperæmia and swelling of the disc, its margin blurred, and the adjacent retina œdematous. The left eye was somewhat similarly affected, but in a very mild degree; partial aphasia and word-deafness were also present. This group of signs and symptoms was manifest for seventeen days following the operation, after which the patient recovered.

The author points out that the interesting feature about the case is the fact that the symptoms usually significant of intra-cranial pressure persisted so long after the operation, notwithstanding that perfect drainage of the abscess cavity obtained. He is of the opinion that the symptoms may be attributed to cerebritis involving a fairly large area of the brain.

Clayton Fox.

**Roosa, D. B. St. John.**—*On the Treatment of Chronic Non-suppurative Disease of the Middle Ear.* "The Post-Graduate," January, 1904.

The author distinguishes three great classes of this disease:—(1) The catarrhal form dependent upon or resulting from nasal and pharyngeal catarrh; (2) the proliferous, when there is no sign of pharyngeal or Eustachian catarrh, but a proliferating process has occurred in the tympanum; (3) adhesive thickening and opacities and cicatrices, the result of a suppurative process that has entirely and definitely run its course, with a membrana tympani intact, although altered.

The effect of operations on the nose and naso-pharynx, tympanotomy, ossiculectomy, and electricity are discussed, and the author thinks that the most one can do is to take care of the nutrition, use the Eustachian catheter or Politzer apparatus and the masseur. Better results are obtained by following the catheter with the Politzer bag.

MacLeod Yearsley.



**Petretts.**—*Case of Typhoid Fever, complicated with Deafness of a Central Origin.* "Wiener klinische Rundschau," February 21, 1904.

Dr. Krause has recently laid stress on the occurrence of ear symptoms in enteric fever. In Petretts' case the deafness varied with the severity of the symptoms, being most marked at the height of the fever, and gradually lessening as the typhoid symptoms subsided. The patient never complained of pain or noises in the ear, nor was there at any time during the course of the disease any affection of the throat or pharynx. The tympanum on both sides was pale and slightly in-drawn.

Petretts concludes that the deafness was due to the action of toxins. The rapid recovery of hearing excludes any degeneration of the auditory nerve.

A. Westerman.

**Schwabach** (Berlin).—*On the Pathology of Deaf-mutism.* "Arch. of Otol.," vol. xxxii, No. 5.

A description of the microscopical examination of the petrous bone of a tuberculous deaf mute. The main change was an inflammatory deposit of bone in the cochlea, especially in the middle part of the lower turn. The vestibule and semicircular were almost normal. The aqueductus cochleæ was obliterated, and the author thinks it probable that the condition arose from meningitis (probably intra-uterine) and extended along the aqueductus cochleæ to the cochlea itself. Politzer, Gradenigo, and Steinbrügge have found the same region to be the part chiefly affected in deaf-mutism.

Dundas Grant.

## THERAPEUTICS.

**Hartmann** (Berlin).—*The Treatment of Acute Otitis Media with a ten per cent. Carbolic Glycerine Solution.* "Deutsch. med. Wochenschr.," 1904, No. 17.

The above treatment is specially recommended for children suffering from acute inflammation of the middle ear. By instillation of the above solution the pain is relieved and the progress of the disease shortened. A child lying in bed restless and crying is found to have great redness of the membrana tympani, if a few drops of a ten per cent. carbolic glycerine solution are now dropped into the ear it often happens that within a few minutes the child is lively and able to get up and play.

Hartmann quotes a case of a patient who had suffered great pain for twenty-four hours being at once relieved after the use of the above solution. Every medical man who has used this remedy for long can give similar instances.

Mothers ought not to be without it in the house, as its use may prevent both parent and child having a sleepless night. In severe inflammations, specially if there co-exists an acute catarrh of the naso-pharynx or severe tonsillitis, the relief obtained by this remedy is only temporary, and paracentesis should not be delayed. As the solution is somewhat of a local anæsthetic the incising of the drum is much less painful than usual. The remedy is very much used by medical men in Berlin.

A. Westerman.

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**"RECENT PHYSICAL RESEARCHES ON THE NATURE OF  
VOWEL TONES IN REGARD TO THEIR BEARING ON  
MOVEMENTS OF THE TYMPANIC MEMBRANE."**

A Lecture delivered on May 21, 1904, to the Otological Society of the United Kingdom in the Class Room of Physiology of the University of Glasgow  
for JOHN G. MCKENDRICK, M.D., LL.D., F.R.S.,

By WALTER COLQUHOUN, M.A., M.B., F.R.S.E.,  
Muirhead Demonstrator.

MR. PRESIDENT, GENTLEMEN,—In the name of Professor McKendrick I bid you welcome to this class room in which for nearly thirty years he has, by the brightness of his lectures and his enthusiasm for his subject, exercised a considerable influence for good on those preparing to enter the medical profession. I am very sorry that he is not here to-day to address you on the branch of his subject to which he has devoted the interest of a lifetime. I am sure that you will join me in wishing that he may have a speedy recovery and that in his absence you will be indulgent to me who endeavours to take his place.

At first sight, gentlemen, it may not be very apparent to you what a meeting of the Otological Society has to do with researches on vowel tones, but I hope that, after a simple statement of the problems of which a solution was attempted, you will agree that the subject is of considerable interest to you. Long before the capabilities of a ferrotype or of a glass plate had been demonstrated it was a source of admiration that a single membrane such as the tympanic membrane could transmit vibrations leading to

such varied perceptions as those of pitch, quality, harmony, proper sequence, and speech. The admiration was not lessened by the consideration that the human race has been profoundly affected through its emotions by the vibrations of the tympanic membrane, whether due to the resonant periods of the orator, to martial music, to love ditties, or to funeral dirges. Indeed, so great has been the demand for this influence, which is usually described as beneficent, that from early times those who could most skilfully invent and transmit the necessary vibrations have been segregated into an honourable profession. The composer of music works by rules which have been elaborated during centuries, and even at the present day the scientist is not absolutely certain that he understands the elements of the subject. Thus we cannot state mathematically the conditions necessary to produce a certain quality of sound. We cannot answer with certainty the questions, "What is it which makes the vowels distinguishable when sung on the same pitch?" "How is it that *o* has always the peculiar character of *o*, and *i* has the peculiar character of *i* when sung at the same pitch?"

Before beginning the discussion of pitch and quality I recall to you the nature of sound waves by showing you one of Crova's discs. As you remember, we have to do with the propagation of alternate condensations and rarefactions of the atmosphere produced by the vibrations of a sonorous body. We may consider the effect on the tympanic membrane as a series of rhythmic impulses. Now the question of pitch appears easily answered. I have here a tuning fork which gives fifty double vibrations per second. If I attach a bristle to one prong I can obtain, by bringing the bristle into contact with the smoked surface of a revolving drum, a record of the vibrations. I can thus assure myself by this method that the octave of the note sounded by another fork gives double the number of vibrations. We know that pitch depends upon such conditions as size of fork, length of string, tension of string, length of tube, etc., and we can so arrange our apparatus that we can obtain a note of any desired pitch. But one question remains unanswered even by the graphic record on the smoked cylinder. "How is it that the same note sounded on different instruments, as, for example, the flute, cornet, trombone, or the violin, can always be distinguished?" We speak of certain notes as rich, pure, brassy, etc. What constitutes the difference between sounds due presumably to the same number of vibrations per second? One fancies, as did Hohnholtz, that the answer to this question will also answer the

question already propounded: "How is it that we can always distinguish the vowels when they are sung on the same note?" Looking to the history of the subject it is found that the first efforts towards the solution of the problem were synthetic.

Kratzenstein and Kempelen, about 1770, attempted to artificially imitate vocal tones, and produced so-called speaking machines but they did not establish general principles.

Robert Willis, in 1833, in his "Lectures on Acoustics," stated, "A given vowel is merely a rapid repetition of its given note," and "The partial characteristic of a vowel is independent of the fundamental tone." In the experiments in which Willis imitated vowel tones, he used reeds with varying lengths of tubes acting as resonators. I repeat some of his experiments. You observe that this reed pipe gives the sound *a* (ah). When I place a resonating cavity above it formed of a cylindrical cardboard box with a round hole in the upper end the sound is changed to *o*. Another resonator having a lip-like protrusion gives *ou*.

Wheatstone, in the *Westminster Review*, 1837, made some excellent suggestions about the nature of vowels and consonants. He wrote that vowels are produced in the larynx and that the cavities above resonate and give quality to the sound.

Donders, by whispering the vowels, showed that the cavity of the mouth, as arranged for giving forth a vowel, was tuned as a resonator for a tone of a certain pitch, and that the forms of the cavity when adjusted for different vowels resonated to notes of different pitch.

The problem was next attacked by Helmholtz, both analytically and synthetically. He analysed the tones of musical instruments and also vowel tones and attempted to reproduce them. I demonstrate to you first the change of quality obtained by adding various partials to a fundamental note. I have here eight forks,  $si_2$  flat,  $si_3$  flat,  $fa_4$ ,  $si_4$  flat,  $re_5$ ,  $fa_5$ ,  $la_5$  flat,  $si_5$  flat, the numbers expressing the frequency of vibration of the last seven being multiples in numerical order of that of the first or fundamental note. You observe that when I sound the fundamental along with any of its partials I change its quality, and that the upper partials especially add brilliancy to the tone. Helmholtz asserted that *ou* was given by the fundamental alone. *O* was obtained by sounding the fundamental moderate, the first partial strong, and the second weak, and so on for the other vowels. With practice, an appreciation of vowel qualities is attained in these experiments, but it cannot be said that the imitation of vowels by means of combinations of tuning forks is very successful.



To analyse the sounds of musical instruments or of vowel tones, Helmholtz used a series of forks whose frequencies were in the ratios 1 : 2 : 3 : 4, etc., each having a cylindrical resonator of corresponding frequency behind it. Each resonator is closed by a disc and can be opened at will by pressing down a key. The forks are kept vibrating by momentary electric currents passing around electromagnets close to their prongs. The interrupting fork, which I tuned carefully to unison with the lowest fork of the series, is in the next room. As you observe the vibrations of the forks are hardly heard, but if I open the resonator opposite any one of them, it at once responds to its fork and sings out. The experiment shows that a whole series of forks can be kept vibrating by making electromagnets with a frequency equal to that of the lowest fork of the series. It suggests that the note of the lowest fork sounded on, say the trumpet, would influence all the resonators. Such indeed was found to be the case, and by opening succeeding resonators it could be observed which responded most loudly. In this way the chief partials which lend quality to a sound could be picked out. The sound could afterwards be reconstructed by setting the forks vibrating by the interrupted currents and opening the proper resonators.

These investigations led Helmholtz to put forward his first theory, which was that, as in all musical instruments, the quality or timbre of the vowel depends on the fundamental tone reinforced by certain partials or overtones, which are produced by the vocal cords along with the fundamental tone, the reinforcement depending on the resonance of the cavities above the vocal cords.

This theory was upset by an observation of Donders and Marey, in using the phonograph to reproduce vowel tones. If a vowel is sung to the phonograph while the cylinder is travelling at a certain speed, the vowel tone will be reproduced with exactly the same quality if the cylinder is driven at the same speed; but if it is driven faster the quality of the vowel will be changed, so much as to be scarcely recognisable. This led Helmholtz to advance a second theory as follows:—"Vowel qualities of tone consequently are essentially distinguished from the tones of most other musical instruments by the fact that the loudness of their partial tones does not depend upon the numerical order, but upon the absolute pitch of those partials; thus when I sing the vowel A to the note E flat, the reinforced tone *b* flat is the twelfth partial tone of the compound; and when I sing the same vowel A to the note *b* flat, the reinforced tone is still *b* flat, but is now the second partial of the compound tone sung." That is to say, that each vowel is characterised by a certain

harmonic or partial tone of fixed pitch, whatever be the pitch of the note on which the vowel was sung. Helmholtz next attempted to discover the pitch of the mouth cavity as a resonance cavity when formed for the pronunciation of certain vowels. I have here Helmholtz's forks. I take up the *O* fork, strike it on my knee, and bring it close to my mouth which is in the form for pronouncing *O*. You hardly hear the fork until it is before the mouth cavity, which at once reinforces the sound. He stated his conclusions, "The pitch of the strongest resonance of the oral cavity depends solely upon the vowel for pronouncing which the mouth has been arranged."

König also investigated the pitch and form of vibration due to vowel sounds by his well known manometric flame apparatus. In the slides which I show you, of flame pictures of vowels, each little elevation may be considered as due to a slight increase of pressure. You observe that the elevations are grouped into periods, as if at regular intervals the vibrating membrane in contact with the gas took a longer swing, still keeping up the lesser vibrations.

It is very necessary to bear in mind, when examining graphic representations of compound vibrations, that wave form alters very much according to phase, and that the human ear is incapable of distinguishing phase. Thus if I sound the same two tuning forks, the sensation from the compound tone is always the same, and yet the tracings or graphic representations of the compound wave would be identical on different occasions only by chance. Thus the waves from the second fork might start at the same time as those from the first, or they might start half a period behind. The compound waves in the two cases, would appear different in graphic representation. I show you on the screen the forms of the compound waves obtained by combining, given simple waves (1) when the latter start at the same phase; (2) when they start at different phases.

I take up now more in detail, and in historical order, the attempts to obtain graphic records of vibrations causing sound:—

In 1807 Thomas Young obtained tracings, familiar to every medical man, of the movements of the prongs of a tuning fork.

In 1856 Leon Scott invented the phonautograph, which consisted of a paraboloid resonator closed at the smaller end by a membrane to which a light lever was attached carrying a writing point. When notes were sung into the open end of the resonator the membrane was set vibrating, and tracings of the movements of the lever's end were taken on a smoked cylinder which rotated on a

screwed axis, thus providing for lateral movement and a continuous tracing.

In 1864 König investigated compound tones by his manometric flame apparatus.

In 1874 Barlow invented the logograph—an improved phonautograph.

In 1877 Edison invented the phonograph.

The phonograph was of enormous interest to those engaged in this branch of research, and it should be of equal interest to otologists. I pointed out early in the lecture that, before the capabilities of a ferrotype or of a glass plate were discovered, it was a source of admiration that the tympanic membrane could transmit all the variations and inflections of the human voice.

We are accustomed to associate one note of definite pitch and of definite quality to a certain known mass of material vibrating under definite conditions. How wonderful did it appear, therefore, when it was found that a ferrotype or a glass plate could be made to take up and record all the complex tones of the human voice or of a band and reproduce them again faithfully! Here we seemed to have found at last a method of accurately investigating the difficult subject of the nature of vowel tones.

A point of interest to otologists is that the ferrotype or the glass plate of a phonograph or of a telephone is in a state of tension, and is thus more ready to spring to respond to vibrations differing greatly in frequency as do those of a compound tone.

I show you a model on a large scale of the phonograph disc with the heavy horseshoe disc which keeps the plate in a state of tension and the blunt reproducing point. In taking a record on the wax cylinder a small, sharp chisel replaces the blunt reproducing point, and when the sound waves set the disc vibrating the fine chisel point cuts grooves in the revolving wax cylinder. The disc, while keeping up its fine vibrations, which cause a succession of pits in the bottom of the groove, swings more or less, thus causing the groove to be deeper at one point than at another, a section along the groove having the appearance of the wooden model lying on the lecture table.

Immediately following the invention of the phonograph the method of Fourierian analysis was applied in 1878 to the investigation of the waves, and it was shown how to break up mathematically a compound wave into its simpler elements. This method lent additional zest to the researches of those who hoped to solve the problem of the cause of the production of vowel tones

by a study of the marks on the phonograph cylinder, because by this mode of analysis it was possible to determine the relative intensities of the partials existing in the compound wave.

Fleeming, Jenkin, and Ewing used the Fourierian method to analyse curves obtained from the tinfoil phonograph.

In 1890 Hermann obtained photographs of the movements of a beam of light reflected from a mirror resting, by a mechanical device, on the vibrating disc of the phonograph.

In 1891, Boeke measured microscopically the breadths of the marks on the surface of the wax cylinder, and from the measurements inferred their depths, thus being able to reconstruct for Fourierian analysis the curves on the surface of the cylinder with considerable accuracy.

In 1895, McKendrick photographed the marks on the surface of the cylinder of the phonograph, and in 1896, by the application of the principle of Lord Kelvin's syphon recorder to the phonograph (a method, however, previously used by Jenkin and Ewing), he was able to obtain tracings of the curves on the surface of the cylinder on a large scale.

I show you a large model of the syphon recorder, and Mr. Paterson, of Messrs. Kelvin and White, shows you McKendrick's phonograph recorder in action. Six inches of tape in this recorder represent an interval of  $\frac{1}{224}$  second, so that a person speaking 120 words per minute would cover 56 feet of tape with each word. Such an extension of the record of the vibrations evidently makes it impossible for me to read writing on the tape, however useful the method may be for minute analysis or for studying the swing of the phonographic disc. Without going into controversies and minutiae which do not especially interest an otological society, it may be stated briefly that by the methods of research indicated it has been made out that in sounding vowels, certain partials, different for each vowel, are reinforced more strongly than others, and that when the same individual sings the same vowel on the same note the same partials are strongly reinforced. A partial may be so strongly reinforced as to obscure the fundamental and lead to deception regarding the pitch of the compound note. Whether the pitch of the predominant partials depends on the pitch of the fundamental or is constant cannot be said to be quite settled, nor can it be said to be settled whether the peculiar quality of a vowel depends absolutely on the amount of reinforcement of certain partials or on the ratio between the reinforcements of the predominant partials.

The point which interests an otological society most is the



movement of the phonographic disc. In connection with a given sound one has to consider (1) Pitch, (2) Intensity, (3) Quality.

Now, we have already seen that pitch is not quite simply dismissed. If I take a line tracing from a fork which gives 100 D. V. per second, I obtain a series of perfectly uniform curves. But suppose that the tone was a compound one, and that on each of the uniform curves we found eight little elevations. What would be the pitch of the note? Would the pitch be increased to 800 D. V. per second? That is just the difficulty which presents itself in the case of the vowels, and that is the difficulty which presents itself in taking graphic tracings. Unless we are very careful in the apparatus chosen, we may obtain the gross vibrations without the fine ones; or, on the other hand, we may add to our tracings vibrations peculiar to the apparatus itself. Now, we fancy that we may grant that each pit on the wax cylinder of the phonograph counts and has its own significance, because free vibration of the plate is damped both by the horseshoe weight and by the resistance of the hard wax to the cutting point; moreover, by running over the pits with a blunt point, the sounds are exactly reproduced. It is of enormous interest, therefore, to try to determine what exactly is the movement of that phonographic disc.

I will show you first that it takes occasional swings which are easily recorded by apparatus which will not record the fine vibrations. We call this a record of *change of intensity*.

I have here a microphone consisting of a metal box packed with carbon and having the side next to the mouth-piece closed by a ferrotype plate. If I speak into the mouth-piece the ferrotype plate vibrates and subjects the carbon to pressure each time it swings inwards. If I pass a constant current through the microphone, the resistance being lessened each time the carbon is compressed by the ferrotype plate, it is evident that every variation in intensity of sound will influence the amount of current passing. I make arrangements to utilise the variation of current in order to obtain a record of variation of intensity of sound. The current is led to electromagnets which pull on the bottom of an air-tight thin iron box, from which proceeds a tube which is connected to a very finely constructed piston, with a lever attached to it, working in a little metal cylinder. Now when the current is stronger the bottom of the thin metal box is more pulled down and the piston descends. You observe that the piston and lever are beating time to every variation of intensity of the song reproduced by the phonograph. Yet such an arrangement does not answer to the fine vibrations. I now connect the apparatus to a Brodie's tambour

used in every physiological laboratory and you see that the recording lever again beats time to the music. I connect straight from the microphone to a time-marker such as is used for obtaining time tracings. You observe that the lever again beats time to the music. We can record the movements of the lever on a smoked cylinder and thus obtain records of changes of intensity of sound or in other words of the gross swings of the phonographic disc.

To demonstrate difference of quality to sounds to you I use an arrangement due to McKendrick in which a lever with writing point attached directly to the blunt point on the under surface of the phonographic disc is made to record the vibrations of the disc on the quickly moving glass plate of his "railway" myograph used for other purposes. I first take a 100 D.V. time tracing on the glass plate and then I sing the vowels in succession into the mouth-piece and obtain a tracing of the vibrations of the phonograph disc for each on the glass plate. I show you the result in the lantern. You observe that each vowel has a characteristic tracing which is always the same for the same individual. You observe that by means of the time tracing I can count the number of vibrations corresponding to any vowel occurring in any given number of hundredths of a second and can thus determine the "pitch" of the vowel if we are to denote by pitch the greatest observable number of vibrations per second. I show you magnified tracings of the vowel "i" which bring out its very high pitch, or rather, to be more accurate, the very high pitch of its predominant partial.

Lastly, as an interesting and entertaining experiment, I show you the singing arc-light. The current to the arc-light is passing through a primary coil around which is a secondary through which is passing a current which also passes through a microphone in the next room. If I sing into the microphone I cause variations in the current passing through it, which variations react on the current passing through the primary coil to the arc-lamp. How exactly these latter variations cause my voice to be reproduced from the arc-light I cannot explain.

#### CONCLUSIONS.

1. Vowels are musical tones produced in the larynx, but they owe their special quality to the fact that the laryngeal tone arouses by resonance mouth tones, which are added to the laryngeal tone, or they may even mask it to such an extent that the laryngeal tone may scarcely be heard.

2. The pitch of these mouth tones need not be necessarily

simple multiples of the pitch of the laryngeal tone, but they often have this relation. The pitch of the mouth tones is variable owing to the possibility of infinitely small changes in the form and capacity of the pharyngeal, oral, nasal, and other cavities of the throat and face, depending on the individual, and thus we may say there are hundreds or thousands of vowel sounds, as may be illustrated in the Arabic and Chinese languages. But while this is so the variation is never beyond a certain limit, within variable limits for each individual, so that a certain vowel—a, for example—is always recognisable.

3. The vowel being produced by simultaneous sounds of different pitch and intensity, it follows that the tympanic membrane has the power of taking up such vibrations simultaneously, and, since we distinguish the vowels, that the ear has the power of transmitting them so that they are analysed and recognised by the higher centres. Indeed, it is possible that the analysis first takes place in the internal ear, and that the results affect groups of cells in the higher centres differently.

Many interesting problems arise, demanding more precise information than we possess, which can best be solved by otologists, who must have among their patients many who have trained ears.

1. Is the power of distinguishing pitch ever retained while that of distinguishing quality is lost? If so, under what conditions?

2. Is the lack of power to distinguish phase universal?

3. How do (1) Disease of tympanic membrane; (2) Disease or ankylosis of ossicles; (3) Disease of internal ear; affect sense of pitch or of quality?

Cases of disease of the internal ear are especially interesting as bearing on the question of an analysis of the compound sound wave taking place there.

## REMOVAL OF THE SEMICIRCULAR CANALS IN A CASE OF UNILATERAL AURAL VERTIGO.<sup>1</sup>

BY RICHARD LAKE, F.R.C.S.ENG.

Surgeon, Royal Ear Hospital, London.

THE patient was a woman of twenty-one years of age, who was the subject of attacks of aural vertigo, combined with sickness and vomiting, with gradually increasing deafness and tinnitus,

<sup>1</sup> Communicated to the Otological Society of the United Kingdom, May 21, 1904.

the whole duration of the disease being five years. No cause could be found for the origin of the deafness.

During this period she had been subjected to long courses of treatment, both by careful dieting, and by the administration of various drugs of repute for the relief of these symptoms.

I saw her first six months before the operation which I am about to describe was performed. As she stated that she thought the use of her eyes in reading and in needlework tended to induce the attacks, she was examined at St. Thomas's Hospital by Mr. Fisher, who diagnosed slight hypertrophic astigmatism, and ordered her appropriate glasses, which she wore until a fortnight before the operation. She, however, stated that the use of these glasses made no difference as to the frequency of her attacks.

The attacks were heralded in usually by increased tinnitus, which not infrequently came on while she was lying down. The tinnitus persisted after the sickness and vertigo had ceased. She was unable to state that objects took any particular course during the attacks, or that she felt any tendency to fall in any particular direction.

During the six months when she may be considered to have been under my treatment, she was for some time given a drachm of quinine daily in three doses, each dose being administered with a drachm of hydrobromic acid. She also took iodide, strychnine, belladonna, and mercury; yet during this time not only did she obtain no relief, but her attacks increased in frequency, often recurring after an interval of only one day, though for the last two years and more she had never been free from an attack for a period of more than two months. As a last final attempt to obtain relief before having resort to an operation, which at the best could only be based on theory, she was taken into hospital, and treated with hypodermic injections of pilocarpine. During these two weeks she had several attacks of vertigo.

The examination of the ear gave the following results:—

Acoumeter in concha. Voice was heard at two feet. Whisper not heard. Rinne's test with forks C and C<sup>2</sup> were negative. C. mastoid — 30 secs., C<sup>2</sup> — 16 secs. Tests with tuning forks 3C, 2C, 1C, C were not heard. C<sup>1</sup> — 50 secs., C<sup>2</sup> — 40 secs., C<sup>3</sup> — 30 secs., C<sup>4</sup> — 25 secs.

On February 16 of this year she was anæsthetised, and an ordinary radical mastoid operation was performed, with the exception that the innermost portion of the posterior wall was not removed, but the bony opening in the temporal bone was enlarged, both forwards, upwards, and backwards. Anteriorly it was ex-



tended into the base of the zygomatic process of the temporal bone, and postero-superiorly in such a way that the long diameter of the bony wound was from above downwards and forwards. The malleus and incus lying exposed after the removal of the external attic wall were removed. At this period of the operation the burr was substituted for the cutting gouge which had been previously employed.

The next step in the operation consisted in exposing the upper and outer surfaces of the external semicircular canal in its whole extent. The antero-external portion of this canal was now followed forwards and inwards until the outer surface of the superior canal was brought into view. The whole of this canal was then removed by cutting it away with a medium-sized burr, leaving only the upper part of the arch, or fornix, untouched. The posterior rim of the external canal was then followed, so as to bring into view the posterior canal, which was burred away entirely. A large oval burr was now substituted for the medium-sized burr previously used, and the upper surface of the external—the only remaining—canal was cut away with the burr until the anterior half of the membranous canal was exposed. This was then removed with a small burr, which was then employed to make a medium-sized opening into the vestibule, and an attempt was made to clear away the crista acoustica at that end of the canal. This completed the operation.

The wound was then swabbed out with Lister's strong solution, a precaution which I considered to be necessary to adopt, on account of the impossibility of carrying out our operative procedures under strict antiseptic precautions. The external meatus was divided longitudinally through its posterior wall, and the wound packed and closed by the ordinary methods.

Immediately after the operation the patient suffered very severely from shock, which lasted for about one hour. Slight chloroform sickness supervened, but this was certainly hardly so much as is commonly the case. For the next forty-eight hours the patient lay coiled up on the right side, her thighs flexed on the abdomen, and the legs on the thighs, in the typical position commonly described as that due to cerebral irritation. During this period her eyes were tightly closed, but beneath the lids one could see that there were erratic movements of the eyeballs, and she resented any attempt to raise the lids; but though the light from the window fell directly on her face, she preferred not to have the window darkened.

On the third day the wound was dressed, and she would open

her eyes if asked to do so, but preferred to keep them shut. When they were opened the eyeballs were subject to irregular rhythmical movements, both upwards and downwards and laterally.

On the seventh day she sat up; on the tenth day she was able to walk with assistance for a few steps, and on the fourteenth day she could walk easily from the small room in which she was into that adjoining, a matter of some fifteen to twenty feet there and back. She could, however, only turn towards the right or sound side. If she turned to the left, she would have fallen over towards the right side.

On the sixteenth day she walked downstairs with a little assistance, and upstairs without any. Her symptoms from that time lessened day by day.

At the end of four weeks she was able to do everything without any fear of falling. Since the fourth day there had been no movements of the eyes, nor could any optic movements be induced, either by syringing the wound with hot or cold lotions.

It is now fourteen weeks, or slightly over three months since the operation. There has been no return of vertigo, and the patient is enjoying better health than she has done for the last few years.

There are a few points in respect to this case which are worth considering.

The first is naturally the indication for operation. That can only be arrived at with anything approaching certainty when one has more than one case to consider. Those cases which would appear to me to be the most suitable are those in which, by a careful examination, and after a course of treatment, one has proved that the vertigo cannot be controlled, and at the same time that the deafness is sufficiently great to admit of no reasonable hope of alleviation, although, as will be seen when one comes to consider the question of tinnitus, the hearing does not appear to be materially diminished, and indeed the reverse was noticed in this case.

The operation itself is one in which the difficulties will be largely due to anatomical irregularities and the age of the patient. In those skulls in which the middle fossa is at a lower level than the semicircular canals, the operation would of necessity be more difficult and tedious.

With regard to the age of the patient, all patients, excepting those who have passed middle age, have a dense petrous bone, and the definition of the canals is extremely difficult.

With regard to the symptoms following operation, it is.

impossible to avoid the conclusion that the extreme shock and irregular movements of the eyes were not entirely disconnected with the use of Lister's strong solution, for we are aware that irritation of the canals causes graver symptoms than simple section, and I would go so far as to say that strong and irritant antiseptics should not be employed.

Finally, with regard to the tinnitus and the hearing power. The former was absolutely uninfluenced by the operation, that is to say, her tinnitus is still as bad as it was before. The hearing power, however, underwent a most extraordinary change. The voice, which had only been heard before the operation at two feet, was now well heard at five feet. Her bone conduction, which had previously been minus 30 secs., was now minus 25 secs., but whereas she had heard the C<sup>1</sup> tuning fork, although very badly, before, she was unable to detect it by air conduction afterwards.

**A BRIEF NOTE ON TESTING THE HEARING WITH THE HIGHER TUNING FORKS; DERIVED FROM TESTS MADE IN A CASE OF REMOVAL OF THE NECROSED LABYRINTH, TOGETHER WITH THE MEMBRANOUS COCHLEA. SHOWN IN DECEMBER, 1901.<sup>1</sup>**

BY RICHARD LAKE, F.R.C.S.ENG.

THE remarks of the President at the last meeting of the Society with regard to the anomalous results occasionally obtained from Weber's tests after removal of a necrosed labyrinth suggested that a few remarks on the subject might be worth the attention of the Fellows.

Dr. Randall, in a paper he read at the American Otological Society in July, 1902, brought this subject up, together with a list of cases in which the effect on the hearing was stated in some proportion. In one the cochlea was removed, and there was some hearing. In another, reported by Goldstein, which was not given in this list, but was reported in the JOURNAL OF LARYNGOLOGY some years ago, some hearing was found to remain.

This makes three in all wherein some hearing remained; but I think we may fairly assume that when the total membranous cochlea has been removed or has been destroyed by disease, no hearing persists, but where the membranous cochlea remains, a small portion may be functionally active. In the case I had the honour

<sup>1</sup> Communicated to the Otological Society of the United Kingdom, May 21, 1904.

of showing, I recently submitted the patient to a careful examination with the following results :—

He is a man aged fifty-seven, an intelligent artisan. Weber's test was positive on the right side. On the left side, which was the side operated on, there was no bone conduction whatever with any tuning fork, but when the acoumeter was placed in contact with that side of the head, he said that, although he heard it, he was unable to say that it was with the right ear. From this I think we may assume that bone conduction by means of the acoumeter, in grave nerve deafness, is useless for diagnostic purposes.

On the right-hand side he had a loss of twelve seconds in his air conduction with  $C^4$  tuning fork.

I now proceed to attempt to determine to what extent the tuning forks would be heard with the sound ear, when that was tightly closed, and the tuning fork held on the opposite side of the head. The result of these observations was that no tuning fork held thus could be heard below  $C^3$ , that if  $C^3$  was struck sufficiently hard it would be heard by the sound ear to within thirty seconds of its ceasing to vibrate, and  $C^4$  forty-five seconds. Deducting from this forty-five seconds the twelve seconds which were lost in air conduction on the sound side, we have then left the fact that if a tuning fork of high pitch is struck with too great violence, the sound may be perceived by the sound ear, and attributed to the diseased one, if the duration of its vibration is over thirty seconds, and this might apply also to lower-pitched tuning forks, if they were struck so as to obtain over-tones.

I may also say in connection with tuning fork tests, that I consider it extremely probable that the diminution in the bone conduction noticed with increasing age is due in part to the gradually increasing porosity of the petrous bone, and to the consequent difficulty which sound has in penetrating it, especially in the case of high tones.

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### THE INDICATIONS FOR OPERATIVE PROCEDURES IN CONNECTION WITH THE LATERAL SINUS AND INTERNAL JUGULAR VEIN. WITH ILLUSTRATIVE CASES.<sup>1</sup>

BY JAMES H. NICOLL, M.B., C.M.GLAS.

Consulting Surgeon, Glasgow Ear Hospital; Professor of Surgery, Anderson's College, Glasgow.

THE circumstances in which operations on the lateral sinus and jugular vein are called for concern the general surgeon and the

<sup>1</sup> Communicated to the Otological Society of the United Kingdom, May 21, 1904.



otologist. They constitute a wide field in operative surgery, presenting numerous cases in which the interests of the patient are best served by the co-operation of the specialist and the general surgeon.

Either vessel may demand attention on account of some affection peculiar to itself. On the other hand, operation may be necessary in either because of some affection of the other.

The operations performed may be tabulated as follows :

#### THE SINUS.

(a) *Operative interference on account of some involvement of the walls or contents of the sinus itself.*—Such involvement, while frequently suspected from the symptoms presented, is, as a rule, demonstrated in the course of a radical mastoidectomy. The treatment necessary is so well established in otological practice that, were it not for the directions given in a number of works on general and operative surgery, reference to the matter might be omitted. It may be well, however, to emphasise the rule that, given a sinus opened for infective thrombosis in the sigmoid region, the exposure and opening of the vessel must be continued until the end of the thrombus is reached. Such has been the routine practice of otologists for years, and in a number of cases the resulting operation has exposed the sinus as far as the torcular. The removal of the whole of the infective thrombus constitutes the patient's main chance of escaping general pyæmic dissemination. Further, even when such has already occurred, the removal of the thrombus cuts off the supply of pyogenic emboli, and the result may be recovery, as in the case of a patient present, the particulars of whose case are recorded in the last edition of Barr's "Diseases of the Ear." In this case Dr. Barr and myself removed the thrombus extending from sigmoid to torcular (tying the jugular also in the neck), after the patient had developed pyæmic pulmonary abscess, with ultimate recovery.

(b) *Operative interference with the sinus on account of some affection of the jugular vein.*—These cases concern the general surgeon rather than the otologist. Two typical cases will indicate the scope of surgery in this direction :—

(1) J. C——, aged ten, shown to the Society to-day. Seven months ago, while clearing out caseating tubercular glands from her neck, in which the tissues were "massed" by dense periadenitic induration, I accidentally tore the jugular so close to the base of the skull that ligature proved impracticable and packing

insufficient. I therefore opened the mastoid process (avoiding the antrum), exposed the sigmoid sinus, and, with the *point d'appui* furnished by the skull, readily controlled the hæmorrhage in the neck by packing the sinus. That measure I had previously carried out in other cases.

(2) Case of a patient with malignant disease of the tonsil and fauces implicating the lateral pharyngeal wall. In this case, operated on nine years ago, the common carotid artery was ligatured as a preliminary step, and, at the same time, the venous channel was abolished by tying the jugular and opening and packing the sigmoid sinus in the skull. Ten days later I attempted to resect the cancerous mass. The operation was abandoned owing to the arterial conditions. The external carotid and its lingual and facial branches were found to be thrombotic. The internal carotid, however, contained fluid blood and presented the arterial pulse transmitted by the circle of Willis. The venous channel was found to be impervious and thrombosed.

#### THE INTERNAL JUGULAR VEIN.

(a) *Operative interference on account of some affection implicating the vein itself.*—Of diseases involving the vein that most frequently found is some affection of the deeper cervical lymphatic glands, in which tuberculosis, pyogenic inflammation, carcinoma, and lymphadenoma are common. Operations for the treatment of such conditions constantly present to the surgeon one or other of two contingencies, in which it is necessary to deal with the internal jugular vein:

(1) Accidental wound of the vein or of one of its main entering tributaries. In such event, in a case with much periadenitic induration, the finding and ligaturing of the vessel may prove a task of no little difficulty. The old surgical rule, that that which cannot be secured and safely left should be removed, suggests the obvious course of extending the skin incision and applying ligatures to the vein at points where the anatomical relations of parts can be made out above and below the indurated area where the wound occurred, with removal of the intervening portion of the vein *en masse* with the adherent glands. Should, however, the patient be a girl, to whose parents the surgeon has optimistically spoken of "tunnelling" out the glands through a skin incision of "one inch," he is occasionally tempted to abandon procedure *secundum artem*, and to trust to that "fate" which has been declared to be "ever better than design." Whatever her power in affairs in general, it may be

conceded that, when fate assumes the form of a competent nurse, and her thread that of a strip of gauze packing, the ultimate result is frequently better than that of the more surgically correct formal procedure.

(2) Involvement of the vein in the glandular mass of so intimate a character that attempted freeing would appear to be futile. In such a case removal of several inches of the vein *en masse* with the glands is deliberately included in the design of the operation. In the specimen shown to the Society the mass of glands surrounding the vein removed happens to be tubercular. The operation is more frequently called for in the case of carcinomatous and lymphadenomatous glands.

(b) *Operative interference with the vein on account of some disease affecting the sinus.*—The jugular vein may be dealt with in an emergency, or its closure may be a feature in a deliberately planned operation.

(1) *Emergency.*—Accidental wounding of the sigmoid sinus is not infrequent in the course of radical mastoidectomy. The resulting hæmorrhage obscures the operation field, and may amount to a serious loss before the end of the operation. Ligature of the vein largely reduces the hæmorrhage, checking all flow from the lower end of the divided sinus—a flow which may become enormous in any respiratory difficulty under anæsthetic and during the vomiting of recovery.

Ligature of the vein in such emergency secures the patient, further, against the risk of pyæmia through respiratory aspiration into the wound in the sinns of pyogenic material dislodged in the further course of the mastoidectomy.

Accidental wounding of the sinus may occur also during the subsequent dressing of the mastoidectomy cavity, as in one of the cases shown to the Society.

A. U——, aged five, radical mastoidectomy, August, 1900, for tubercular disease of the middle ear and mastoid. Extensive carionecrosis of mastoid dealt with, and sinus freely exposed in consequence. Three weeks later, during re-introduction of the gauze packing, the sinus was lacerated by the probe. The jugular was tied in the neck and the packing secured in the mastoidectomy cavity by sutures through the skin.

(2) Ligature or excision of the jugular vein as an operation deliberately planned.—In cases of infective sinus thrombosis it is an essential that, so far as the main channel at least is concerned, the end of the thrombus be reached. This involves following the intra-cranial channel to the torcular or further, and the inspection of

the jugular vein in the neck, with ligature or excision, in some cases as low as the first rib. Measures thus indicated for the vein commonly constitute a feature in the operation on the sinus, and the work of Horsley, Ballance, and others places the obliteration of the jugular vein in the position of the natural termination of a mastoidectomy in which the sinus has been found involved, or of a measure to be carried out at a subsequent early operation. In such a case co-operation between otologist and surgeon is in the patient's interests, if for no other reason than that a resection of the jugular is not a measure to be undertaken by the same fingers and instruments as have just left a septic mastoid antrum.

*Ligature or resection of the jugular vein as a preliminary to mastoidectomy.*—For some years I have made it a routine practice, in two classes of cases, to deal with the jugular vein in the first instance as a preliminary to mastoidectomy. These cases are:—

(1) Cases in which the ear and mastoid disease has produced secondary mischief in the cervical glands. Such cases, so far as my experience goes, are more common in children than in adults. Further, the mastoid affection is commonly of tubercular nature, with carionecrosis of the mastoid, often extensive, and necessitating in consequence more than one operation to complete the cure. In such cases the glands are removed from the neck and the jugular vein dealt with as the first step in the radical mastoid operation.

Three of the cases shown to the Society were thus dealt with:—J. G——, aged three, operation 1902, and J. D——, aged seven, operation 1901, were affected on one side only. They are both soundly cured, apparently, and have been selected as illustrating also the two common results of healing after mastoidectomy of a radical kind in which no grafting was employed. In the case of J. G—— the cavity has quite closed, and the evidence of the mastoidectomy consists in the crescentic scar behind the auricle. In the case of J. D—— there remains a cavity of the size of a sparrow's egg, or larger. This has become completely "papered" by an ingrowth of epidermis from the margins, and communicates freely with the middle ear. In this case the result entails this disadvantage to the boy, who is now at school, that when his bigger schoolmates are idle they capture him, fill the cavity with earth, and implant therein a spent lucifer match, which he is forbidden to remove on pain of dire consequences.

The third case, J. M——, aged fourteen, is shown as illustrating the results of such treatment carried out on both sides, the right in 1900 and the left in 1903.

(2) Cases in which no glandular affection exists, but in which



there is reason to suspect either actual sinus involvement or such an extent of carious mischief as will probably necessitate exposure of the sigmoid curve of the sinus. The latter cases not infrequently demand repeated operation for removal of carious bone. In such cases the jugular is ligatured as the first step in operative treatment. Two of the cases shown belong to this category:—

H. N——, aged three, operation 1902, has been selected as illustrating cure attained after three operations for removal of caries. The amount of bone removed may be judged by the size of the skin-“papered” cavity behind the auricle.

M. G——, aged five, has been selected for two reasons. The disease, and consequent operation, were bilateral. Both sides have been operated on for caries on several occasions. In neither side, however, has cure yet been attained. In such a case preliminary ligature of the jugular is in some degree a safeguard against hæmorrhage from accidental wounding of the exposed sinus in repeated operations, or in course of prolonged dressing by packing (*vide supra*—Case of A. U——). It is also a safeguard against general hæmatogenous infection of tubercular or pyogenic nature.

Preliminary obliteration of the venous channel may be made more complete, as the following case illustrates:—

M. S——, aged sixteen, operation 1901, symptoms of acute mastoid empyema with probable sinus thrombosis. Ligature of jugular vein at level of sixth cervical vertebra. Exposure of lateral sinus midway between sigmoid and torcular; opening of sinus and occlusion by packing. Neck wound accurately closed by suture. Scalp wound temporarily closed by suture over the packing in the small trephine aperture in the skull. Both wounds covered by iodoform collodion. Radical mastoidectomy—purulent contents cleared from antrum and attic; sinus exposed at sigmoid curve, apparently healthy, and not dealt with. Uneventful recovery. Packing in mastoid cavity renewed daily. On fourth day mastoid cavity appeared dry—wound over trephine aperture for lateral sinus therefore re-opened and packing in sinus groove changed. Both mastoid and sinus wounds re-packed daily till tenth day, when the latter was finally closed by suture.

Preliminary abolition of the venous current by means of ligature or resection of the internal jugular, with or without closure of the lateral sinus, is an operation which, with ordinary aseptic technique, presents risks which may be regarded as trivial. Its advantages are:—

(1) That, as the initial step in the operative treatment, or as a distinct preliminary operation, it is performed by clean hands and

instruments, and not by hands and instruments soiled by the septic contents of the mastoid cavity previously dealt with.

(2) That the incision necessary may be utilised for the removal of infected cervical glands.

(3) That in cases in which, on exposing the sigmoid sinus in the course of a mastoidectomy, the discovery of presumptive evidence of infective thrombosis leads to the opening of the sinus and the demonstration of the thrombus (often in the shape of flocculent patches along one wall only), ligature of the jugular carried out then may prove futile in preventing pyæmic dissemination. In such a case the disturbance of the sinus wall, in its exposure, palpation and opening up, will have gone far to dislodge portions of the septic thrombus into the venous channel patent to the general circulation. Preliminary ligature obviates such risk.

### CASE OF TRAUMATIC ATRESIA OF THE MEATUS SUCCESSFULLY TREATED BY OPERATION.<sup>1</sup>

By MACLEOD YEARSLEY, F.R.C.S.ENG.,

Surgeon to the Royal Ear Hospital, London.

THE patient, J. R——, aged forty-three years, was first seen on September 18, 1901. He was thrown out of a cart fourteen years before in Australia, when his left auricle was nearly torn off. The ear was readjusted, but in the after-dressing the tube was not properly inserted and the meatus became closed. A pin-hole orifice opened of itself in front of the lower part of the helix six to nine months later, from which a slight serous fluid exuded occasionally.

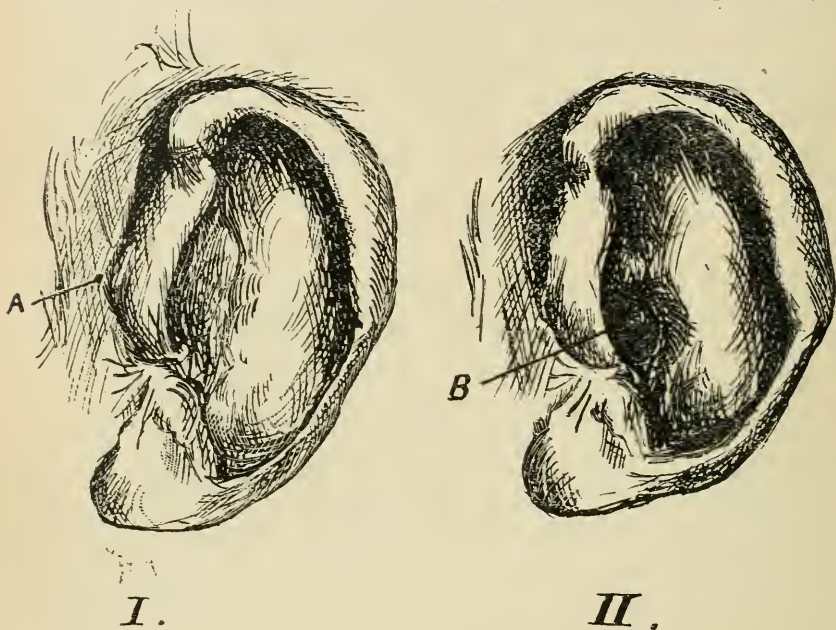
Eighteen months before consultation he began to complain of pain in the left ear, preventing sleep. There was tinnitus, with a feeling of great fulness and headache. On examination the ear presented the cicatrised condition shown in the sketch (I). Practically the whole concha was filled with firm fibrous tissue. In front of the lower part of the helix was a very small opening, which admitted only a Hartmann's probe (A, in Sketch I). The watch was heard faintly on pressure, and there was no loss of bone-conduction to the tuning-fork.

Chloroform was administered on November 6, 1901, and the auricle and membranous meatus were turned forward by a semi-circular incision over the mastoid. The whole meatus was found to

<sup>1</sup> Communicated to the Otological Society of the United Kingdom, May 21, 1904.

be full of a non-offensive sebaceous-like material. This was carefully removed, and the membrane tympani was found to be intact. An incision was made through the cicatricial material which filled the concha, and as much fibrous tissue as possible was dissected out. The membranous meatus was then split in two places, and the resulting flap attached to the under surface of the skin flap by two sutures, tied over rubber-tubing. The meatus was packed with gauze and the primary incision closed.

Recovery took place somewhat slowly, the new meatus gradually



becoming lined with granulations. On November 16, he could hear the watch at twenty-one inches. Packing was discontinued on November 20, and a specially made leaden tube inserted. It had been originally intended to graft, but he took the anæsthetic so badly that it was not thought worth the risk to subject him to a second operation.

He was last seen on January 28, 1903, when the second sketch (II) was made, showing the new meatal opening at B. He had lost all his pain, tinnitus, and headache, and could hear very well indeed. The meatus was then lined throughout with epithelium, and although the orifice still tended slightly to contract, the patient stated that he could easily counteract this by occasionally wearing his tube at night.

## SOCIETIES' PROCEEDINGS.

### PROCEEDINGS OF THE BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

*Ordinary Meeting, held at 11, Chandos Street, Cavendish Square, W.,  
Friday, May 13, 1904.*

*The President, Mr. JOHN BARK, in the Chair.*

The PRESIDENT referred to the great loss the Association had suffered since the last meeting in the death of Sir Philip Smyly, who was the second President of the Association, following Sir Morell Mackenzie in the chair. The President, after speaking in appreciative terms of the interest Sir Philip Smyly always took in the welfare of the Association, and of his cordial courtesy and genial manners, proposed the following resolution of condolence with Lady Smyly and family, which was unanimously agreed to :

“That the Fellows of the Association desire to express their sympathy with Lady Smyly and family, and to record the high esteem and affection in which they held their late colleague.”

It was announced that the following candidates had been elected Fellows of the Association :

Harold Shuttleworth Barwell, M.B.Lond., F.R.C.S.Eng. (London).

Howel Buckland Jones, M.B., C.M.Edin. (London).

J. Hardie Neil, M.B. (Melbourne), M.R.C.S.Eng. (Auckland, New Zealand).

John Aldington Gibb, M.B., C.M.Aberd. (London).

Andrew Haig, M.A., M.D.Ontario (Canada).

William Lloyd, F.R.C.S.Eng. (London).

Frank Atcherley Rose, M.B.Cantab., F.R.C.S.Eng. (London).

The Secretary read a letter from the Laryngological Society inviting the Association to co-operate in celebrating the centenary in March of next year of Senor Manuel Garcia.

Upon the motion of Dr. Dundas Grant, seconded by Dr. Jobson Horne, it was unanimously agreed that a very cordial letter should be sent to the Laryngological Society of London expressing the sympathy of the Association, collectively and individually, with



the proposal, and that the details of co-operating with the Laryngological Society to carry through the proposal be left in the hands of the Council, for which purpose a special meeting of the Council should be held at a convenient date.

The following resolution from the Council was submitted and unanimously agreed to :

"That a Sub-Committee be formed of two Members of the Council and two Fellows (not Members of the Council) with one of the Secretaries to consider and revise the Rules and Constitution of the Association and report at the Annual Meeting."

The PRESIDENT nominated Dr. Atwood Thorne and Dr. Jobson Horne to represent the Council, and Dr. Dennis Vinrace and Dr. Dundas Grant were chosen from amongst the Fellows, with Dr. Andrew Wylie as Secretary, and those gentlemen were unanimously appointed.

The following communications were made :

Dr. W. H. KELSON showed a *Case of Post-nasal Cysts*.

The patient, a man, aged thirty-six, had for years suffered from post-nasal catarrh. About once a week a tough fibrinous disc the size of a shilling formed in the region of Luschka's tonsil. It became loose after three or four days, and patient was able to expectorate it. Scraping, galvano-cautery, and caustics had been tried, but the disc re-formed.

Dr. GRANT said: I think this kind of case, Mr. President, deserves some attention. Dr. Kelson has probably eliminated any of the sinuses being affected. On account of the absence of mucus on the posterior extremities of the turbinated bodies, the probability of its coming from the sinuses of the nose is less than it otherwise would be. I think it would be desirable that bacteriological examinations should be made. Sometimes tubercle, and sometimes syphilitic ulceration is to be found there. I remember a very melancholy case of a gentleman who came to me with such an appearance as this. I questioned him with regard to the possibility of syphilitic affection, and he, unfortunately, said that there was nothing of the kind. It appeared afterwards that he had been inoculated, and he eventually died of cerebral syphilis. I do not know whether Dr. Kelson has tried a complete scraping away of the pharyngeal tonsil, which I fancy is the best treatment, but as a means of cleaning it something is necessary. Perhaps the inspiratory nasal douche is the best thing we have. This is a douche

which acts by the patient sniffing up the liquid, not simply from the hand, but from a little chamber in which the inspiratory tube goes right down to the bottom, and it has surprised me how thoroughly this cleanses the nasal cavities. To those who have not tried it I should strongly recommend a consideration of it.

Dr. WYATT WINGRAVE said: Doubtless the nasal obstruction in this case has played a very important part, because the patient says that he used to suffer with nasal obstruction; at the same time we must not look upon that as a simple pharyngitis sicca entirely due to nasal stenosis, for there is another element characterised by the entire disappearance of the lymphoid structures, a feature pathognomonic of atrophic rhinitis and pharyngitis. I should think he could be considerably ameliorated by the reducing of these very large turbinals.

The PRESIDENT: I was rather struck with Dr. Grant's suggestion. There is a very useful method of washing out the nasal pharynx: the nose is held and the head thrown back, the act of swallowing is made, and the liquid instead of being swallowed is brought back.

Dr. KELSON, in reply, said: I have had this man under my care for some eight or nine months. After about five months material formed just about the arch of the atlas, which prevented one seeing that part of the naso-pharynx properly. He could gradually get it away by sniffing and hawking. The other parts are not affected. The treatment has been the galvano-cautery, thorough scraping, and chromic acid. The conclusion I arrived at was that one did not reach the part it came from, and I thought that some part of the accumulation might still be left.

Dr. KELSON also showed a *Case of Epithelioma of the Larynx and Œsophagus*.

The patient, a single woman, aged thirty-one, had suffered from discomfort in the throat for one year; she was first seen last January, when an epithelioma in the region of the cricoid plate was found; removal of the growth was not considered advisable. Tracheotomy became necessary on March 25; since then patient had much improved in health, and had swallowed fairly well.

The PRESIDENT said: I think this is very remarkable in one so young—I understand that the woman is only thirty. I remember showing this Society a case of epithelioma of the Œsophagus in a woman quite as young, if not younger, but I think a case of this kind must be very rare. I am inclined to think this started in the Œsophagus and extended to its present position in the larynx.

I shall be glad to hear your opinion in regard to that, especially considering the age of the patient.

Dr. GRANT said: I have come across cases of malignant disease in comparatively young people—I do not say younger than this one, but certainly not much older—in which I failed to make a correct diagnosis. One recently presented all the appearance of a tuberculous perichondritis of the arytenoid cartilage, and there was wide difference of opinion as to whether the lungs were affected or not. I was very doubtful, but others seemed to feel no doubt on the subject. However, we found later what were obviously epitheliomatous fungations sprouting into the pyriform fossa. The patient eventually died. I had another case with what I thought was syphilitic perichondritis of the cartilages, probably the arytenoid. The patient died, and Dr. Wingrave was able to find, in the deep part of the diseased tissue, unmistakable epithelioma.

I have not seen a case of carcinoma of the larynx in such a young person.

Mr. CLAYTON FOX suggested that it might be a case of sarcoma.

The PRESIDENT said he had made inquiries on the point, and from microscopic examinations it was typical epithelioma.

Dr. KELSON, in reply, said it certainly did begin in the œsophagus, and one could see that the larynx gradually became affected.

Dr. KELSON also showed a *Specimen from a Case of Cut Throat*.

Dr. KELSON said: I have brought the larynx of a man who attempted to commit suicide by cutting his throat two years ago. He cut through the thyroid membrane and missed the larynx and the large vessels. He lived for two years and gradually seemed to waste away, without definite disease—more from inanition than anything else. One or two operations were performed with a view to uniting the parts, but they were not successful.

Mr. MAYO COLLIER said that in nearly all these cases of attempted suicide the mind is afflicted. The disease is still present after the wound in the throat is cured; these cases go downhill slowly but surely. They generally die with symptoms of melancholia and dementia.

Mr. MAYO COLLIER read notes of a *Case of Abscess of the Thyroid Body*.

Mr. MAYO COLLIER said it was a case of exceptional interest; when he was asked to see it he found the man with an enormous

swelling in the neck, and was told that a doctor had been in attendance for a week for severe influenza, and a week before this swelling had come on, with a very high temperature. The condition of the man, when he saw him, was extremely bad. He had a very large swelling and could only breathe in one position. The previous history was that he had a swelling on the one side of the neck and this had apparently been subject to fluctuations in size for two years, but the recent trouble had been brought about by influenza. Looking at the condition of the man, something had to be done. He was cyanosed, and he could just get enough air to keep life in him. On examination of the neck I could find no distinct cyst. I thought at once of a cyst of the thyroid which was pressing on the trachea. I could make out no cyst. It was hopeless to attempt tracheotomy without very skilled operators' assistance, so it was hopeless to operate at once. Consequently the telephone was brought into requisition, and two of my colleagues were summoned. Unfortunately I had to return, and was unable to be present. My two colleagues, Mr. Jackson Clarke and Mr. Templeton, performed the operation. This is the note: An incision about three inches long was made in the middle line, and the tumour partially isolated. There was severe hæmorrhage from engorged veins during this stage of the operation, and the patient began to show signs of asphyxia. The trachea was opened low down in the neck and a tube introduced. Artificial respiration, injection of strychnine and ammonia to nostrils had no effect, the patient never breathing again. The *post-mortem* examination was most interesting, because without any chance of diagnosing it there was a very large cyst—as big as a goose's egg—pressing directly upon the trachea, and by reason of the influenza it had suddenly become enlarged. The swelling was limited to the left lobe of the thyroid. When opened it was found to contain a quantity of thick, chocolate-coloured pus, extremely offensive. The swelling was adherent to the carotid sheath. The rings of the trachea showed no signs of atrophy from pressure, and both recurrent laryngeal nerves were apparently sound. *Heart*.—Muscle and valves normal. Right side distended with clot. *Lungs*.—Very œdematous. Bronchi filled with frothy fluid. Other organs apparently normal. I had never seen a case of this kind before, and I thought the Society would like to hear of my experience on the subject.

The PRESIDENT said: I think it is almost courageous when men bring before us cases where they have not been successful. I think, possibly, we learn more from those cases which are un-



successful. It is not often that members are courageous enough to bring cases of this sort before the Societies. I shall be glad to hear any remarks.

Dr. GRANT said: I remember one case in my practice—the case of an elderly gentleman—in which after an attack of influenza of an extreme nature an enormous swelling of the thyroid took place. I used applications of ice, which, I believe, is the recognised treatment, and he was able to breathe fairly well. I then introduced an aspirating needle into the thyroid in several directions, in the hope that I might find an abscess, but I failed to come across anything of the sort. It did not appear to be extremely urgent. Unfortunately, a sudden termination took place. The patient died and, unfortunately, no *post-mortem* examination was to be had. The moral, undoubtedly, is that there should be no delay in considering the question of operation if circumstances will at all permit of it.

Dr. J. LUMSDEN showed *Nasal Dilators for Continuous Dilatation of the Anterior Nares in Cases of Nasal Obstruction*.

He said he was anxious to show this small instrument for the relief of nasal obstruction, when due to swelling of the mucous membrane covering the nasal bones. The benefits found to result from the use of it, by those who complain of stuffiness in the nose, were (1) that it allows the nose to be thoroughly cleared from discharge by sniffing air backwards. Usually this means of clearing the nose is rendered useless in cases of nasal obstruction by the indrawing of the alæ nasi, which occurs at each sniff. The dilator, by keeping the nostrils wide, allows a powerful current of air to be drawn in, carrying with it the discharge, the removal of which is of as much value in an inflamed nose as in an inflamed joint. (2) That it allows nasal respiration to be comfortably carried on while it is in place. Nine out of ten patients who come complaining of stuffiness find that they can breathe more freely during examination of the anterior nares than usually, and I believe that the temporary relief thus obtained as long as the dilator is in place is of permanent value in two ways: (a) the inspired air, by removing moisture from the mucous membrane as it passes, tends to diminish swelling in that tissue; (b) there seems to be a vicious cycle between swelling and the state of obstruction or stuffiness. By relieving the obstruction the dilator breaks this cycle. The more swollen the mucous membrane covering the nasal bones the greater is the resulting obstruction, and I believe that the greater the obstruction

the more tendency there is for the mucons membrane to swell; for the greater the obstruction the harder one has to inspire to get enough air through the nose, and this increased suction may sometimes be actually seen to suck out the membrane over the turbinals towards the lumen at each inspiration. The dilator removes the state of stuffiness or obstruction, and consequently the extra suction, and the now unsupported swelling recedes, leaving the nose permanently freer after the removal of the dilator. He suggested the use of the dilator during the night, and for a few minutes during the day when required and when convenient. Even a few minutes' dilatation allows the clearing of the nostrils, and relieves the obstruction due to congestion after holding the head down over work or to simple rhinitis. I was unaware until after constructing this dilator that nasal dilatation had been used before for collapse of the *alæ nasi*, but I must still be deluded if the method has been used in the way and for the purpose I suggest. The instrument is neatly made by Messrs. Arnold; it is inexpensive (1s. each), comfortable, easily adjusted to the required size, and is very effective. I find it much more firmly retained than the other dilators, and I should be very much pleased if others would give it a trial.

The PRESIDENT said that the idea was a very good one, and he would certainly give it a trial.

Dr. WYLIE: I may say, Mr. President, that I have tried something of the same sort recently, and my patients have said that it afforded them great relief. Of course it did not cure them—there is no question of a cure—but it afforded them great relief.

Mr. STUART-LOW: I have used this just recently in the case of a patient after operation in the nose, and he said that he was able to breathe exceedingly well, and not so comfortably when it was taken out; it seemed to prevent the gathering up of clots after operation.

Dr. VINRACE: I can scarcely imagine that this instrument is likely to press upon the position of the nose where the obstruction might be expected to reside.

Dr. WYATT WINGRAVE: In the use of these dilators, if you have a constant stretch the action of the dilating muscles of the nostrils themselves is entirely lost. I find the better plan is to have a piece of rubber tubing, which is just about the size of the vestibule, and use it for a few hours daily with massage and voluntary contraction. If you depend entirely upon something pressing the nostrils the subsequent collapse will be greater than before. You must encourage the muscles to act themselves. When it is a

question of collapse owing to muscular atrophy, then we require to develop the muscles.

Dr. JOBSON HORNE considered the simpler the appliances the better, and spoke favourably of small pieces of cotton wool tucked up into the recess of the vestibule of the nose.

Dr. KELSON: I think one objection would be—in the case of private patients—that the thing is not entirely concealed, and I do not think private patients would be willing to go about with a wire across the face. I think Dr. Jobson Horne's suggestion is a good one.

Dr. LUMSDEN: I should like to say that all I ask the Fellows to do is to try it—which they have not yet done. Moreover, it is not for collapse, it is to make the nostrils wider than normal. I think if it is tried in the case of swollen terminals it will make the breathing freer. I recognise the difficulty of its appearance, and that is why I recommend its use at night.

#### DISCUSSION ON Mr. MAYO COLLIER'S PAPER ON *Latent or Intermittent Nasal Obstruction*.<sup>1</sup>

Dr. DUNDAS GRANT, in opening the discussion on Mr. Mayo Collier's communication, said that he agreed with most of the statements contained in the paper, but there were a few that he would take exception to—intermittent obstruction was an entity, but that it had hitherto escaped the notice of rhinologists he did not admit. At the meeting of the British Medical Association at Glasgow, in 1888, Dr. Hunter, of Linlithgow, drew attention to this important subject.

The effect of nasal obstruction on the ear was a disputed point: it did undoubtedly have an effect, but how brought about was yet unsettled. The negative pressure produced during inspiration was supposed to have great effect, but then there was the increased positive pressure during expiration to be considered. Therefore these theories required reconsidering. Dr. Scanes Spicer's experiments showed that there was no negative pressure if the nose was quite stopped (as by nasal polypi) and respiration was entirely buccal. The negative or positive nature of the pressure varied according as the obstruction took place during expiration or inspiration.

Arachnoid fluid doubtless normally filtered through into the nose, and in fractures of the base of the skull it was marvellous what

<sup>1</sup> Communicated to the Association at previous meeting, January 29, 1904.

large quantities might pass off with no harmful effect. Dr. St-Clair Thomson's investigations were mentioned in this connection.

Typical sclerosis of the ear must be placed in a chapter by itself; nasal stenosis could have no bearing on this condition, but only on moist conditions.

Dr. Dundas Grant disputed that the hollow groove on the septum of the nose was produced by the pressure of the engorged or enlarged inferior turbinal. Indeed the groove might lead to the enlargement of the turbinal. The groove is frequently more apparent than real: it is relative only. The existence of a large cartilage of Jacobson accounts for the appearance of a groove in many instances.

In the treatment he commonly used cocaine and adrenalin and the galvano-cautery, passing the needle through the periosteum and thus pinning it down. High frequency currents might be used for intra-nasal vascular dilatation, and, theoretically, galvanisation of the sympathetic.

Dr. R. H. Woods said that he had written on this subject under the title of nocturnal obstruction, which in his opinion was a more appropriate name for the condition. He disagreed with Mr. Collier's statement that the drum was influenced by changes of pressure in the naso-pharynx during respiration. This might occur if the Eustachian tube were patent, but its normal condition was one of collapse, the walls being in contact and requiring a great degree of force to separate them, as in Valsalva's experiment.

Dr. SIMS WALLACE said: In what was to me a most instructive paper, Mr. Mayo Collier mentioned several of the functions of the nose, but I am led to believe he omitted one which is of considerable importance in its relation to this subject of nasal obstruction. I venture to submit that the nose is not only a respiratory organ, but it is a perspiratory organ also. If we consider what happens when we breathe, we observe that a large amount of air which is drawn into the air passages never reaches the air cells of the lungs at all, but it is broken up, forming eddies over the various moist projections and recesses of the nasal cavity. The air that ultimately does reach the lungs gets moistened, of course, but so does the greater amount which is inhaled without even reaching the lungs at all. When we are at rest in bed and well covered, perhaps too well covered, it is obvious that the general surface of the body is not so well adapted for the perspiratory function as when we are up and moving about, and when the air is circulating more or less freely around us. In fact, when we are lying at rest the only parts of the body over which a current of air is freely



passing are the walls of the nasal cavity and respiratory passages, Thus it is perfectly natural that if we get warm in bed, the nasal mucous membrane will get congested, just as the surface of the body gets congested when we become overheated. If the nasal passages were not unduly narrow, only good would result, for the evaporation caused by the current of air through the nose would help to keep the body temperature normal. I need not here refer to the harmful effects of an undue amount of perspiration at night, or of an undue rise of bodily temperature. What is of special importance to note is that the nose is a perspiratory organ, and if the function of perspiration is interfered with or unduly taxed, various deleterious effects are certain to be brought about. Mr. Mayo Collier has referred to the fact that it occurs when the patient is asleep; perhaps we may ask if this is not due to congestion caused by warmth and the position of the head, in people with narrow nasal passages? We may ask if intermittent nasal obstruction is or is not most apt to be frequent in damp localities, for if the atmosphere is damp, the perspiratory function cannot be carried on so easily or efficiently as if the air were dry. We may ask, too, if in the treatment of this condition a sparse or moderate covering of dry blankets and a dry locality is beneficial or otherwise? In conclusion, I should say that I have advanced these speculations without any intention of grumbling at Mr. Mayo Collier's paper. I heartily appreciate it, and have derived much valuable information from it. But I put forward these suggestions as to the perspiratory function of the nose in the hope of gaining even further information from Mr. Collier in his reply.

Dr. PEGLER eulogized Mr. Mayo Collier's paper and extolled the courage with which he had characteristically enforced his theories. The indifference of the generality of the profession to the forms and degrees of inadequate nasal respiration, in the train of which so many ailments followed, rendered it important to reiterate as Mr. Collier had done, the numerous indisputable facts so well marshalled in the paper and diffuse them in a concise and easily digested form. Other speakers having commented on various points in the paper that invited criticism, he should confine himself to the objective signs of intermittent obstruction, a variety of nasal insufficiency to which he had already devoted attention in his paper at the Ipswich meeting of the British Medical Association (1900). Mr. Mayo Collier evidently placed little credence upon the modern view relating to the direction taken by the inspiratory current over the olfactory area *via* the middle and superior meatuses; from a practical standpoint Dr. Pegler recognised the difficulty,

since a contracted inferior meatus, at whatever part, or from whatever cause, was a very serious obstacle to inspiration. Of the terms proposed by Mr. Collier to designate this form of obstruction, he preferred that of "intermittent" as satisfactorily including the sub-variety "nocturnal" and being more scientifically accurate than "latent," at all events until actual latency of the signs had been more fully established. Referring to the diurnal variations, he believed that a cause would usually betray itself in the toneless and easily compressible mucous investment of the inferior turbinate, the contractile property of which was, in this state of vasomotor atony, extremely restricted. He should expect to find this or other evidence of intra-nasal irregularities when the sequential symptoms were as severe as Mr. Collier had delineated, rather than an abnormality which, in the general opinion, he thought would be regarded as compatible only with the physiological ebb and flow that was hardly separable from our climatic conditions. A potent source of "latent" obstruction unquestionably lay in the moriform hypertrophies so liable to develop at the posterior ends of the inferior turbinals, and which from the size of a large pea were liable to distend until occupying the entire choanæ; in the dorsal decubitus this is presumably a common occurrence. Another, though rather less frequent seat of erectile tumefaction, was the septal mucosa in the region of the middle meatus, which might also be exclusively affected. Dr. Pegler did not, therefore, regard any one of these objective signs as more pathognomonic than another, nor did he agree that intermittent obstruction was more harmful to the individual than all the varieties of continuous stenosis, "due to growths, outgrowths, deflections, and what not," put together. With this reservation as to the question of pathognomonic importance, he accepted the hypothesis that a groove or hollow was creatable upon the opposing surface (chiefly involving the mucous coat) of the septum, when the engorgement was at its height. A case in his practice recently had illustrated this point very markedly, the hollow having been formed by an anterior turbinal hypertrophy about the size of a filbert, in a young male patient. He had also noticed in other cases a hollow on the septum in the inferior meatus, bounded in front by a vertically curved line, which corresponded so nearly with the genu of the opposite turbinal that there seemed no other explanation, save that a coaptation of the surfaces had been in existence during the decumbent posture, or at periods of vasomotor turgescence. Questioning the patients had not, however, always elicited subjective symptoms of importance wherewith to associate this sign. He wished to carefully distinguish what he had

just described from rigid curvatures and angles in the septal cartilage, which were so frequently followed up by the turbinal in a state of compensatory hypertrophy, though the treatment might be similar for both. The thin crusting of dry secretion that Mr. Collier had mentioned as occurring in intermittent obstruction had been observed by the speaker, and he should endeavour to carefully trace and verify the relationship of cause and effect. He hoped that at a future meeting of the Association some cases would be brought together by the reader of the paper and others, so that an interchange of views might further elucidate the subject of intermittent obstruction and remove discrepancies of opinion that now obtained.

Mr. CLAYTON FOX said that amongst the many items of interest in Mr. Mayo Collier's paper there was one which he did not understand. Mr. Mayo Collier stated "the middle ear, or tubo-tympanum, is developed from the nose by two finger-like prolongations. It is simply a prolongation of the nose cavity. The cavity of the nose and ear are practically one." Mr. Clayton Fox said that theory was diametrically opposed to the accepted teaching of the day, namely that the nasal cavities, for the most part, were formed out of the olfactory pits and stomodœum, fronto-nasal and maxillary processes, and were lined with an epithelium epiblastic in origin, whereas the tubo-tympanum was developed in the proximal portion of the hyomandibular or first cleft *recess*, and was lined with epithelium essentially hypoblastic in origin. Moreover, the oral plate, as is clearly shown in a diagram in "Keith's Embryology," page 18, edition 1902, divides the two regions in question.

Dr. WYATT WINGRAVE said: I am sure we are all very much indebted to Dr. Mayo Collier for his very interesting paper. I cannot, however, quite agree with him on one or two points. For instance, intermittent nasal obstruction is particularly associated with the period of puberty. Mr. Collier has altogether discarded that subject, saying that the sexual organs have nothing whatever to do with the nose. Further, he unjustly accuses us of indifference to the subject. I am sure Dr. Collier will forgive me if I take exception to that assumption and to one or two points in his very interesting paper. He refers to a considerable interchange of gases in the passage of the air through the nostrils. The duration of the air in the nasal cavities is obviously so short that gas interchange must be very small indeed. He also refers to oxidation of the blood. Oxidation does not go on in the blood itself, it is confined entirely to the tissues. I think that Dr. Collier should have said oxygenation. With regard to the effect of respiration on the tympanic

membrane, that is a question which has been discussed a great deal. The act of opening the mouth is simply mimetic and done to accentuate attention, and does not, I think, intensify the hearing power. When a man looks in a shop window the first thing he does is to open his mouth.

Dr. VINRACE said: In common with the other speakers I have been most interested and enlightened by Dr. Collier's very able and scholarly paper. I think he has accentuated a condition which has not been fully recognised. There are too many cases of this latent, or intermittent disease, and if we are not careful we may almost include the whole of humanity in that group of patients. Therefore I wish Dr. Collier would put us on the right road with regard to treatment, and make it perfectly clear what are the indications when any operation must be performed.

Mr. MAYO COLLIER, in replying to the various criticisms on his paper, said that he had been much gratified at the course the debate had taken. This was the second adjournment and third discussion on his paper, and yet throughout the whole debate he had been treated with a fairness and consideration and kindly reception that he had scarcely expected, considering the complexity of the subject presented to the meeting. Any member of such a Society as this who presented views in any way novel or open to criticism must expect to be severely handled when placing his thoughts and opinions before such a competent tribunal. On the whole, the result of the debate had left a solid residuum of accepted facts extremely flattering to the author of the paper. Mr. Collier said that in the short space of time allotted to him for his reply, he would ask the indulgence of the meeting and make apologies to those members to whom he was unable to categorically reply. To two members especially he would tender his most respectful thanks for their remarks, and in stating he was now unable to reply to them it was not for want of appreciation of the cogency of their criticisms, but it was from the fact that these criticisms were in no way relevant to the paper before them. Dr. Sims Wallace had alluded to the nose as a perspiratory organ as well as being a respiratory organ. There was much in Dr. Sims Wallace's remarks worthy of their most careful consideration, and Mr. Collier was prepared to admit that there was much also in Dr. Sims Wallace's remarks with which he should entirely agree.

Mr. Dennis Vinrace, with his peculiar aptitude for discovering any omission in a paper, had naturally deplored the absence of any suggestion as to treatment. This subject would be dealt with in a separate paper, and Mr. Collier trusted that a sort of third reading



debate would take place on the whole subject at their next meeting.

Dealing first with the criticisms of one of their most able members, Dr. Dundas Grant, Mr. Collier said he at once felt that any remarks that fell from Dr. Dundas Grant required the most careful consideration and the most able refutation. Dr. Dundas Grant had commenced his criticism with the observation that this subject was hardly deserving of the description given to it, in so far as it had been mentioned before by at least one gentleman at one of the provincial meetings of the British Medical Association. Dr. Grant's very defence was a condemnation, and afforded ample support to the contention advanced in this paper that up to the present latent or intermittent nasal obstruction had scarcely been entertained by rhinologists. In no single text-book on rhinology in any language under the sun is the subject even mentioned, much less the name. Passing on to Dr. Grant's further remarks, he was good enough to admit that there was much in the contention of a state of negative pressure in the nose and accessory cavities during nasal stenosis; but he frankly stated that he was not prepared to "go the whole hog" in reference to Mr. Collier's contentions *re* the effect of nasal stenosis on the Eustachian tube and tympanic cavity. He asked for a further explanation on this subject.

Mr. Collier said he was quite prepared to afford Dr. Grant this explanation. It was better on a subject such as this not to appeal to rhinologists but to go to the fountain head and highest authority on physiology for guidance and assistance. He had with him Sir Michael Foster's great work on physiology, and it would be quite sufficient for his purpose if he quoted Sir Michael's exact words. They were these:—"The negative pressure in the upper respiratory tract during a strong inspiratory effort may vary from 30 to 74 mm., and the positive pressure of a strong expiration from 62 to 100 mm." This was with a normal and patent nasal chamber. If Sir Michael Foster had been asked what were the probable conditions of tension in a post-nasal space when the nasal chambers were stenosed or occluded the speaker did not think he would have objected to the statement that during inspiration the tension was lowered and during expiration increased *pro rata* to the obstruction. It is not difficult to gather from this admission that it follows as a necessary corollary that this difference of pressure in the post-nasal space must affect the contents of the tympanic cavity and also the coverings or mucous membranes of the tubo-tympani. Under normal conditions the difference of tension existing during inspiration and expiration at the mouth of

the Eustachian tube must affect the contents of the tympani and result in a respiratory oscillation of the tympanic membrane. It is difficult to conceive, if this is not so, how the vascular and lymphatic circulation is carried on in the walls of the tympanic cavity and membrane. Aspiration and pressure or suction and force is the very essence of all circulation. Dr. Grant was good enough to admit that in cases of stenosis of the nose there was a condition of vascular dilatation in the post-nasal space, but contended that the increase of pressure during expiration would right or annul this. Dr. Grant's contention was not in accordance with fact. The vascular dilatation produced by the negative pressure associated with inspiration in cases of nasal stenosis would not subside sufficiently quickly before the next inspiration. A cupping glass placed on the arm would produce vascular dilatation, but this would not subside sufficiently quickly under subsequent pressure to resume its *statu quo ante* in the space of four seconds. Each inspiration would leave a residuum of distension which would ultimately result in swelling of the coverings of the Eustachian tube and end in Eustachian obstruction. The slow, chronic, painless form of middle ear disease known as chronic progressive deafness could only be explained on this hypothesis.

In these cases there was slight negative pressure in the tympanic cavity from slight chronic Eustachian obstruction.

There was in these cases redness down the handle of the malleus with depression of the drum head.

There was general over vascularity of the lining of the tympanic cavity. This resulted in new cell growth with opacity of the membrane and later on the well known changes and conditions of sclerosis. It was common knowledge that complete obstruction of the Eustachian orifices from acute rhinitis would produce marked congestion of the whole lining membrane of the tympanum and actually proceed in some cases to hydrox ex vacuo. The fact that complete congenital stenosis might exist with perfectly patent Eustachian tubes was no refutation of this argument.

An undeveloped atrophic mucous membrane such as exists in not a few of these cases would not readily lend itself to vascular dilatation under any circumstances, and so would not affect the patency of the Eustachian tubes.

Dr. Grant had expressed his adherence to the lycopodium experiments as indicating the course of the air in its passage through the nose.

The speaker had gone carefully into the physiology of the upper respiratory tract in a previous paper, and had shown

incontestibly that the whole contents of the nose and accessory cavities was set in motion and partly depleted with each inspiration. There was no such stream as represented by the lycopodium experiments. A forced inspiration would no doubt deposit some lycopodium on the middle turbinal body and roof of the nasal chamber.

This was no new discovery. The act of smelling was so arranged that a forcible sniff would carry the odoriferous particles to the olfactory region, the upper and middle turbinal bodies.

This had nothing to do with ordinary inspiration. He considered these experiments fallacious and irrelevant.

Dr. Woods, of Dublin, had also honoured the speaker with some criticisms on his paper. These criticisms were the result of a slight misunderstanding on the part of Dr. Woods. The fact of the recession of the lining membrane of the frontal sinus during the experiment in question did not suggest that in normal conditions the membrane so receded.

The unavoidable outcome of the experiment was this, that the entire contents of the nose as well as its accessory cavities was set in motion during each inspiration. Dr. Woods, further inquiring as to the oscillation of the tympanic membrane during normal inspiration, was answered by the same explanations afforded to Dr. Grant's remarks.

Dr. Pegler in his able criticisms had relieved the speaker of the necessity of answering the scepticism of Dr. Grant on the subject of the existence of a fossa on the septum indicating the existence of intermittent nasal obstruction. This was not a question of opinion but of fact, and he (the speaker), felt sure that now attention had been drawn to the point its existence would be found to be general.

Dr. Wingrave had taken objection to the attitude assumed in the paper *re* the relation of the nose to the sexual functions. This subject was just noticed in the paper, but was certainly not dissociated. Every mistress of a girls' school could tell Dr. Wingrave that there was a close relation between the nose and the sexual functions. The nasal mucous membrane was always profoundly affected at puberty as well as at each menstrual period, and vicarious nasal menstruation was mentioned in most text-books on gynæcology. A swelling and redness of the nose associated with eruption was a common accompaniment of menstruation. Dr. Wingrave's criticisms on the subject of the "auditory attitude" or the open mouth whilst listening attentively would be answered by the previous observations on the oscillations of the tympanic

membrane. The greater would include the lesser. If the membrane oscillated during nasal respiration, oral respiration must be resorted to to annul these oscillations and render the membrane sensitive to minute sounds. On the objections entertained by Dr. Wingrave as to the interchange of gases in the nose and accessory sinuses, the speaker would prefer to rely upon the well-known and accepted principles laid down on this subject in most text-books on physiology. In answer to Dr. Wingrave's further hypercriticism on the use of the term "oxidation" in speaking of the effect of respiration on the blood, the speaker maintained that Dr. Wingrave's objection was frivolous and groundless. The hæmoglobin of the blood did actually combine with the oxygen and form an oxide of hæmoglobin known as oxy-hæmoglobin. The term "oxygenate" meant to unite or cause to combine with oxygen. The term "oxidate" meant to convert into an oxide. Therefore in this instance the term "oxidate" was more appropriate than the term "oxygenate."

Dr. Fox was good enough to call into question the accuracy of the drawing exhibited to the meeting illustrating the method of development of the tubo-tympanum from the first inner branchial cleft, or what is subsequently the common nose and mouth cavity. The drawing in question was taken from an actual developing specimen, and if wrong, or if Dr. Fox could present any other method of development to the meeting, then the only answer that one could suggest is that nature is not uniform in her methods of development.

In concluding, Mr. Collier said he hoped to present to the Association at their next meeting a paper on "The Treatment of Latent or Intermittent Nasal Obstruction," when the subsidiary points raised by Dr. Sims Wallace and Mr. Dennis Vinrace would be dealt with.

He presented his respectful thanks to the meeting for their patient hearing and favourable reception.

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## PROCEEDINGS OF THE BRITISH MEDICAL ASSOCIATION.

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*Seventy-second Annual Meeting, Oxford, July 26, 27, 28, and 29, 1904.*

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### *Section of Laryngology and Otology.*

*President:* Charters James Symonds, M.S., London. *Vice-*

*Presidents:* Frank Marsh, F.R.C.S., Birmingham; Cecil Edward



Shaw, M.D., Belfast; Harry Lambert Lack, M.D., London.  
*Honorary Secretaries:* Walter Jobson Horne, M.D., London;  
 Edmund Cecil Bevers, M.B., Oxford.

The Meeting of the British Medical Association will take place this year at Oxford from July 26 to July 29 inclusive. The Section of Laryngology and Otology will be held under the presidency of Mr. Charters Symonds.

Foreign and Colonial visitors will be cordially welcomed in the Section, and such as may desire to attend are requested to send in their names as soon as possible to the Honorary Secretaries, together with the titles of any papers they may wish to read.

The Section will meet on Wednesday, Thursday, and Friday, July 27, 28, and 29, at 10 a.m., adjourning at 1 p.m. each day.

The following subjects have been selected for special discussion:—

1. Wednesday, July 27.—“The Treatment of Non-Suppurative Disease of the Middle Ear.”

2. Thursday, July 28.—“The *Ætiology*, Treatment, and Prognosis of Innocent Growths of the Larynx.”

3. Friday, July 29.—“Intranasal Disease as a Determining Factor in the Production of Laryngeal and Pulmonary Affections (Spasmodic and Catarrhal).”

Through the courtesy of the Editor of the *British Medical Journal* we are able to afford our readers the opportunity of studying the following abstracts of papers.

#### THE TREATMENT OF NON-SUPPURATIVE DISEASE OF THE MIDDLE EAR.

The discussion will be introduced by Professor Urban Pritchard (London) and Dr. Thomas Barr (Glasgow).

Abstract of introductory paper by Professor URBAN PRITCHARD.

The classification of the conditions included under non-suppurative disease of the middle ear is not yet agreed upon, but for discussion of treatment the following rough divisions will suffice:

1. Acute non-suppurative otitis media.
2. Early stages of chronic non-suppurative catarrh.
3. Advanced stages of the same.
4. Middle-ear adhesions, the result of former acute inflammation.
5. Sclerosis resulting from disease of the bony capsule enclosing the internal ear and forming the inner wall of the tympanic cavity.

1. *Treatment of acute non-suppurative otitis media.*—In the earliest stages gentle, not forcible, Politzerisation (not catheterisation) will often relieve the pain at once and tend to cut short the attack. Counter-irritation behind the ear is always most valuable, and will often arrest the otitis and relieve the pain. Instillations are occasionally advisable; when used should be strong anodyne solutions (for example, cocaine or mor-

phine) in an antiseptic medium. Glycerine of carbolic acid has been strongly recommended; also adrenalin with cocaine.

Heat in the form of very hot fomentations or hot bran-bags is very useful. Leeches in front and below the ear are valuable in very acute cases.

Incision of the membrane is called for when there is marked bulging of the membrane. The meatus must be purified and afterwards dressed antiseptically to avoid suppuration.

Purgatives are nearly always necessary. Phenacetin or antipyrin, etc., may be given to relieve the pain. Pharyngeal treatment is usually required, but nasal douches or irrigations must absolutely be avoided.

After-treatment.—Politzerisation should always be employed; it will restore the hearing and prevent adhesions. If adenoids are present they must be removed.

2. *Treatment of the early stages of chronic non-suppurative catarrh*, in which there is exudation into the mucous membrane and from its surface; hence stenosis of the Eustachian tube and more or less fluid in the tympanic cavity.

Politzerisation is preferable to catheterisation. This should be repeated at intervals of one, two, or three days, according to the relief obtained as ascertained by the amount of improvement to hearing. This must not be continued when it increases the deafness.

Incision of the membrana tympani may be practised if there is much fluid in the tympanic cavity, but this is practically a rare condition. The operation should be performed antiseptically.

Local medicinal treatment is most valuable. Sterile alkaline nasal irrigation (for example, borax and sodium bicarbonate) is to be preferred to the nasal douche, as the latter occasionally will produce acute otitis. Mild astringent sprays are often beneficial. Inhalations of pine oil, eucalyptus oil, or still better, of fumes of ammonium chloride, are most valuable.

Adenoids and also enlarged tonsils, if present, must be operated on, and any nasal stenosis must also be removed, to allow of free nasal breathing.

Internal medicinal treatment is rarely needed except for general health.

Climatic treatment is important. Damp situations, such as river valleys of gravel with clay subsoil, should be avoided. High, dry, and sunny positions selected. Warm and well-drained seaside resorts are good, whereas cold, damp seashores with northern aspects must be avoided. High sunny Alpine valleys are often very beneficial, but on rapidly descending from these Valsalva's inflation should be practised. Early and continued treatment of these stages of catarrh is most important, and will often prevent the advanced stages.

3. *Treatment of advanced stages of chronic middle-ear catarrh*.—This is much less satisfactory, on account of the adhesions causing retraction of the membrane and fixation of the membrane and ossicles.

Mechanical.—Catheterisation is often preferable to Politzerisation, but the value of courses of repeated inflations has been much overrated. Patients must be warned against the constant recourse to Valsalva's method of inflation; at the same time, cautiously employed, it is of value. Gentle suction by means of Delstanche's masseur is occasionally of value, but may easily be overdone. We have yet to learn the value of the rapid suction massage recently introduced. The Eustachian bougie has been overrated. The objections to its use are: First, the risk of injury to the delicate ciliated mucous membrane; the narrow part of the tube being bony, it cannot be dilated except at the expense of this mucous

membrane. Secondly, in advanced cases the loss of hearing power is almost always due to changes in the tympanic cavity, and not in the Eustachian tube.

Operations.—All these up to the present have been futile.

Local medicinal treatment.—Nasal irrigations of sterile alkaline and saline solutions are of much value. Inhalations of the ammonium chloride fumes, with cautious Valsalva's inflation to introduce them through the Eustachian tubes, form a most valuable treatment; but long-continued use, with intervals of rest, is necessary. Injections through the Eustachian catheter are much employed by some surgeons, and are occasionally of value; probably a sterile solution of sodium bicarbonate is the most efficacious.

Internal medicinal treatment.—Occasionally, when the mucous membrane is glazed and dry, small doses of potassium iodide with ammonia, so as to produce slight symptoms of coryza, combined with some form of inflation, will yield excellent results. Turkish baths are of value in some of the less advanced cases.

Climate.—The same holds good as with the early stages of the disease, but has far less effect.

4. *The treatment of middle-ear adhesions of old standing.*—This is most unsatisfactory. Operative interference has as yet signally failed, though there may be a future for it. In fact, at present these cases only make the surgeon regret that active treatment was not adopted directly after the acute inflammation which resulted in the adhesions.

5. *Treatment of sclerosis.*—This is still more hopeless, and in a pure case no treatment is of any avail—mechanical, medicinal, operative, and climatic treatments are alike useless. All that we can do is to use such general treatment—for example, iron, arsenic, etc.—as will keep up the general health in the hope that this may help to arrest the disease. We have yet to learn whether the high-frequency electric treatment will yield any results.

In conclusion, although very much may be done in acute otitis and in the early stages of chronic catarrh, yet in the advanced stages of chronic catarrh the aural surgeon can do very little. This is very much to be deplored, as these cases are so very common.

Some of us are too apt to give up the advanced cases at once as quite hopeless, forgetting the fact that even a small improvement in hearing is of value to a very deaf patient. Whereas others, being over-enthusiastic, vaunt the value of this or that treatment, which seems to have benefited, perhaps temporarily, one or two cases.

The writer knows of no condition in which treatment should be considered more judiciously, avoiding hasty conclusions for or against any proposed treatment; and considers that we ought certainly not to judge harshly of our over-enthusiastic *confrères* who may be unduly vaunting some new process, having been carried away by a few apparent successes.

#### ETIOLOGY, TREATMENT, AND PROGNOSIS OF INNOCENT GROWTHS OF THE LARYNX.

The discussion will be introduced by Dr. Dundas Grant (London) and Professor A. Rosenberg (Berlin).

Abstract of introductory paper by Dr. DUNDAS GRANT.

Consideration will be limited to non-malignant growths found in the interior of the larynx, and chiefly to those points which are of practical



importance with regard to treatment. This *etiology* is a question of practical weight, and it is only to be regretted that it is often veiled in obscurity. The removal of the cause is an essential step in treatment in medicine, and to a less extent in surgery: in the particular branch of laryngology under discussion it is obviously of secondary importance as compared with the operative removal or destruction of the growth, but it is of the greatest value in prophylaxis and in the prevention of recurrence after extirpation.

Many growths in the larynx are so closely related to inflammatory products that they cannot be distinguished from them, and, indeed, are identical with them in their anatomical structure. Their diversity depends mainly upon which elements in the composite structure of the laryngeal mucous membrane are chiefly affected.

Among the commonest growths in the larynx we find papillomata (pachydermia verrucosa) essentially identical with the pachydermia found in its most typical form on the vocal processes and in the inter-arytenoid space. Such growths as fibromata, fibro-papillomata, fibro-adenomata, cysts, and angiomas, are also explicable as the results of inflammatory conditions. In many cases the sequence of events from an acute to a chronic inflammation, with such subsequent hyperplasia as to constitute a tumour, is evident: in other cases it is most obscure.

Those parts of the vocal cords which undergo the greatest amount of mutual concussion and attrition, such as the junction of the anterior and middle thirds (the most frequent nodal point during phonation), the vocal processes and the inter-arytenoid space would seem to be most liable to chronic inflammatory and neoplastic changes. In the inter-arytenoid space the result is a diffuse thickening (pachydermia), at the vocal process the typical pachydermic nodule. At the junction of the anterior and middle thirds of the cords there may be a "singer's nodule," consisting of a simple epithelial thickening (a miniature corn), a smaller or larger papilloma generally of soft consistence or a sessile or pendulous oedematous fibroma which may exceptionally contain glandular structure.

Growths at the anterior commissure may depend on the same causes, but it seems likely that they are at times of developmental origin, and are really embryonic remains allied to those congenital diaphragms sometimes occupying more or less of the space between the anterior parts of the cords.

The chief causes of irritation of the larynx are over-use or wrong use of the voice and irritating vapours or dusty atmosphere—for example, the black-board chalk in the case of teachers. Excess in tobacco smoke (especially "inhalation" of cigarette smoke) may also be quoted. Nasal obstruction leading to mouth-breathing or purulent nasal discharges inhaled into the larynx are among the most potent contributory. Syphilis and tuberculosis may induce such chronic inflammatory changes as predispose to the development of new growths, but the irritation of the microbes of pulmonary phthisis—the tubercle bacilli as well as the accompanying micrococci—is known to be capable of exciting the growth of papillomata. It is probable that laryngeal papillomata when multiple are due to microbic infection.

*Prognosis of innocent laryngeal growths.*—This is dependent mainly upon their accessibility for removal and the possibility of avoidance of the predisposing and exciting causes.

If not removed their tendency is to increase of growth leading to fatal obstruction to respiration, all the more rapid in supraglottic or intraglottic growths, also to continued and increased impairment of voice,



more rapid in intraglottic or infraglottic growths (in the latter case still more if the growth is sufficiently mobile to be driven up between the cords during expiration). Spontaneous disappearance is possible in the case of papillomata, but cannot be counted upon.

After operation recurrence is probable unless the removal is complete. The writer's experience would lead him to the view that single pedunculated growths at the anterior commissure are unlikely to recur, whereas sessile ones at the junction of the anterior and middle thirds of the vocal cord are very likely to do so, as also are multiple papillomata.

The question of malignant transformation of benign growths cannot be left unconsidered. Practically, it only arises in connection with papillomata, which, in exposed parts of the body, have a tendency, under repeated or continued irritation, to develop into epitheliomata. There is no reason for immunity on the part of the larynx, but the results of Semon's collective investigation seem convincing as to its extreme rarity. Moreover, the evidence that while it occurred in one in two hundred and eleven of the cases on which no operation was performed and in only one in two hundred and forty-nine of those operated on, allows a margin in favour of operation. This is a complete answer to those who have been inclined to attribute to the traumatism effected by intralaryngeal operation a tendency to bring about malignant changes in innocent laryngeal growths.

In the few cases related by Fauvel the removal of the growth was followed by long-continued cauterisation with nitrate of silver.

*Treatment.*—This is not necessarily always operative. The avoidance of exciting and predisposing causes—for example, complete silence or limitation of voice to a whisper for several months—is sometimes sufficient in cases of very small nodules due to over-use or misuse of the voice. Coughing must be absolutely prohibited or prevented. Avoidance of smoking or smoky atmosphere and moderation or abstinence in regard to alcohol and other causes of gastro-hepatic disturbance are also valuable prophylactic and therapeutic factors. The correction of errors in voice production is of vital importance. The writer is convinced of the beneficial effect of the vocal exercises devised by Holbrook Curtis and of a rational method of respiration in the use of the voice. The occasional application of astringents may contribute.

In other growths removal is the only treatment and it should be carried out *per vias naturales*. The form of instrument employed varies with the special experience of the operator.

The following practical hints, founded on the writer's practice, may meet with the approval of those who are accustomed to Morell Mackenzie's form of handle, and the forceps referred to are modifications of those with which he did his finest work.

Pendulous growths at the anterior commissure call for the cold snare, and, if it fails, Powell's or Lack's forceps with anteflexed tips. Similar growths on the edge of the cord may be removed with snare or Grant's safety forceps. For sessile growths on the edge of the cord, the latter instrument is pre-eminently adapted. For growths in the posterior commissure Wolfenden's or Lake's forceps, and for those on the upper surface of the cord, Whistler's are very useful.

Krause's handle is much use abroad, and his is the best known tube forceps to which various double curettes and other blades can be adapted. The advantages of these blades combined with a handle acting like that of Morell Mackenzie's are obtained by means of Watson Williams's recently devised instrument. A cutting punch-forceps with blades adapted for the four cardinal points has been invented by Jurasz,

and the writer has found it invaluable for the removal of portions of growths for microscopical examination.

Cutting ring knives (Luc) and guillotines (Chappell) have been used by some, but British operators in general seem to pin their faith to some adaptation of Morell Mackenzie's instruments.

For the destruction of the stump various caustics have been employed, such as nitrate of silver, formalin, chromic acid, trichloroacetic or salicylic acid, the last named being in the writer's opinion particularly valuable for papillomata. The writer's recent experience impressed him very favourably with the value and practicability of the fine galvano-caustic point.

Among other means must be mentioned an instrument like O'Dwyer's intubation tube with thin-walled tubes having fenestræ cut in such positions as to engage the growth (usually papilloma in children) and snip it off. Tracheotomy has sometimes led to the disappearance of papillomata in children, but not constantly.

Cysts on the lingual aspect of the epiglottis may be avulsed, or elsewhere they may be incised, preferably by means of the galvano-caustic knife. Angiomata may be destroyed by means of the galvano-cautery.

Anæsthesia by means of cocaine has rendered many of these operations easy, which were formerly impossible. The best method seems to be the slow injection of about 5 minims of a 20 per cent. solution of hydrochloride of cocaine, by means of a laryngeal syringe, so that the liquid is allowed to trickle over the edge of the epiglottis (Westerman). The combination of local anæsthesia (cocaine) and general anæsthesia (chloroform) introduced by Scanes Spicer, has added still further to our possibilities. Lastly, the use of Mount-Bleyer's "epiglottis lifter" has greatly facilitated the writer's examinations and operations. Escat, of Toulouse, and Lambert Iack have devised somewhat similar instruments. Kirstein's method of autoscopia is available for growths situated close to the upper orifice of the larynx.

The distance from the dorsum of the tongue to the vocal cord is sometimes very considerable and beyond the reach of ordinary laryngeal forceps—say fully four inches. In such a case the writer eradicated a papilloma of the size of a split pea by a few touches of the fine galvano-cautery point.

Are there any circumstances which call for removal of non-malignant intralaryngeal growths by external operation? Fauvel, with characteristic decision, rejected this absolutely. Certainly the cases in which it is justifiable are extremely few (we are not considering growths on the outer aspect of the framework of the larynx). When, however, all endolaryngeal methods in the most skilled hands available have failed, or the size or vascularity of the tumour makes intralaryngeal measures impracticable, external methods are called for.

Tracheotomy may be practised in children with papillomata, who may not be amenable to endolaryngeal treatment, more especially if breathing is obstructed, in the hope that spontaneous disappearance of the growths may take place. It is also useful for the removal of a growth so low in the larynx as to be beyond the reach of intralaryngeal instruments.

Infrahyoid laryngotomy is adapted only for growths which should be reached through the mouth.

Thyrotomy had formerly a high mortality, but is practically nearly as safe as tracheotomy. It should, however, be avoided for fear of impairment of voice, as the result of imperfect coaptation of the vocal cords. No doubt a more complete extirpation may be effected in this way than

by the natural passages. Recurrence is thus made less probable, but it is by no means excluded.

In the complete paper the writer will cite cases illustrating the points touched on in this summary.

#### INTRANASAL DISEASE AS A DETERMINING FACTOR IN THE PRODUCTION OF LARYNGEAL AND PULMONARY AFFECTIONS.

The discussion will be opened by Dr. Greville MacDonald (London) and by Dr. Samuel West (London).

Abstract of introductory paper by Dr. GREVILLE MACDONALD.

Referring to the unsatisfactory condition of a subject where the conflict of clinical facts, the contradictory opinions deduced by authorities, and the small help afforded by the physiologist, preclude the possibility of establishing a scientific basis for future investigation, the paper offers a working generalisation which may be a step towards the establishment of a definite law.

The writer deals with his own observations, and divides his cases into three classes:

1. Those pointing to the relief or cure of asthma by removing obstruction to easy breathing or obstruction causing pressure.

2. Those where the treatment of any other sort of abnormality in the nose is similarly successful.

3. Those where the mere cauterisation of the mucous membrane in a healthy nose results in relief or cure.

These three classes are then discussed *seriatim*. In the first, the most favourable forms of obstruction are, first, anterior hypertrophy of the inferior turbinals; second, septal spurs and deviations; third, adenoids; and, lastly, polypus. In the second class are found general œdema of the mucous membrane, especially when associated with excessive sneezing, frequently also with chronic bronchitic asthma. Not infrequently the cure of these cases is effected by the electric cautery. Atrophic rhinitis may also be responsible for asthma, and the amelioration of the nasal condition may result in cure of the bronchial symptoms. In the third class the writer endorses the valuable observations of Dr. Alexander Francis as to the frequent relief, and even cure, of asthma from the mere cauterisation of the mucous membrane covering the upper part of the triangular cartilage in perfectly healthy noses.

So far the clinical facts of the association of the nose with asthma are obvious enough. But they are further emphasised by the observation that occasionally the removal of polypus sometimes originates, for the first time, the onset of asthma.

Passing now to his generalisation, the writer invites attention to three points of collateral evidence:

1. That whenever a patient complains of frequent and severe cold-taking, and we find any abnormalities whatever in the nose, we can almost promise to cure his cold-taking by curing the nasal abnormality.

2. That whenever a patient complains of paroxysmal sneezing, whether of daily attack or of longer interval, we are tolerably sure of curing him by correcting the nasal disease or malformation.

3. That a patient with polypus, less often with other form of obstruction, sometimes takes cold often severely, in the form of rhinitis, laryngitis, or bronchitis, after the removal of the obstruction. Probably the



sudden exposure of a protected mucous membrane to cold air accounts for each of these accidents as well as the asthma.

Remembering these three points, which will be conceded by many observers, this generalisation may be formulated:

Any treatment that allays the irritability of the Schneiderian membrane, whether by operation and the ventilating of abnormally protected areas of mucous membrane, or by hardening the hyperæsthetic areas with the electric cautery, or by the exhibition of such local remedies as cocaine, or the very useful but pernicious nostrum known as "Tucker's cure," any such treatment of the nose may modify or arrest the onset of catarrhal attacks, whether they manifest themselves in symptoms of sneezing, laryngitis, bronchitis, and asthma.

Members are invited to contribute any preparations, specimens or drawings, or any instruments or apparatus pertaining to the work of the Section, which have been designed by themselves, in order that the Committee of the Section may make arrangements to form a special exhibit of such objects.

The offer of a paper will not be accepted on its title alone. Offers of papers will not be accepted in excess of the number likely to be read. As the ratio between the number of papers sent in and the time available for reading them at the Annual Meeting will probably be very disproportionate, preference will be given in the case of communications of equal importance to those which are first received.

Communications relating to the exhibition of preparations, instruments, etc., may be addressed to Dr. E. C. Bevers, 117, Woodstock Road, Oxford; and all others relating to papers and discussions to Dr. Jobson Horne, 27, New Cavendish Street, W., and marked "Section of Laryngology and Otology."

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## Abstracts.

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### FAUCES.

**Raoult** (Nancy).—*On the Employment of Adrenalin in Malignant Affections of the Throat.* "Archives de Laryngologie, etc.," July-August, 1904.

Raoult has used 1 in 1000 solutions of adrenalin in many cases. In one case after the local application in small doses for a month the removal of the diseased tonsil was followed by a violent reaction.

Anthony McCall.

**Vacher** (d'Orléans).—*A Practical Way of Removing Tonsils.* "Archives Internationales Laryngologie, etc.," July-August, 1904.

The author advises the use of a probe to free the tonsil from its



pillars. A snare is then applied, the tonsil seized and drawn out by a pair of forceps, and the tightening of the snare completes the operation. If the cold snare is used, the tightening must be done slowly to avoid hæmorrhage, especially in elderly subjects, but the use of the hot snare allows of the operation being more quickly done. *Anthony McCall.*

**Morse, J. Lovett.**—*Tonsillitis a Cause of Acute Nephritis.* "Archives of Pediatrics," May, 1904.

The author points out the neglect which this matter has received. When tonsillitis is considered from a bacteriological point of view the possibility of it leading to acute nephritis is not surprising, especially when it is remembered how largely streptococci figure in tonsillar inflammations. Four cases have been met with by Morse in the past eight months in which tonsillitis was followed by acute nephritis, two being adults and two children. In each case it was possible to absolutely exclude scarlet fever or previous renal disease. The importance of careful examination of both heart and urine in tonsillitis is insisted upon.

*Macleod Yearsley.*

## NOSE.

**James H. McKee.**—*The Importance of Epistaxis in the Diagnosis of Nasal Diphtheria.* "The Therapeutic Gazette," March 15, 1904.

The author gives an outline of the history of diphtheria from the time of Galen to the present day. After giving details of seven cases of nasal diphtheria, he gives the following as his views of the cause of epistaxis in the disease: (1) Severity of the local disease process; (2) The depth of the inflammatory process; (3) Toxæmia; (4) Alarming or fatal hæmorrhage is always dependent upon profound toxæmia. He summarises as follows:—(1) Staining of nasal discharge with blood is common in nasal diphtheria, and moderate epistaxis not infrequent; (2) Epistaxis is of much diagnostic value; (3) In malignant, mixed, or streptodiphtheria of the nose, epistaxis may be most alarming or even fatal.

*Macleod Yearsley.*

**I. Valentine Levi.**—*The Curative Effect of Erysipelas upon Atrophic Rhinitis.* "The Therapeutic Gazette," March 15, 1904.

This paper is based upon one case in which the patient, a male, aged thirty-seven years, was cured of his atrophic rhinitis by two attacks of erysipelas, ending by showing hypertrophy of the turbinates. The author suggests that the results are due to: (1) The diametrically opposite nature of the pathology of the two diseases; (2) The action of the bacterial products of erysipelas on certain other diseases.

*Macleod Yearsley.*

**E. Denegre Martin.**—*A Suggestion in Operations for Hypospadias and a Method to prevent the Closure of the Nares in Rhinoplasty.* "New Orleans Medical and Surgical Journal," April, 1904.

In the second part of this paper the author suggests that the flap taken from the forehead should have its base cut broader and longer than is usually done. After removing the flap, it is thinned on either side of

the columella and inverted, thus forming the new columella, and at the same time grafting the orifices of the nares with normal skin flaps, which will overcome the danger of contraction and the obliteration of the nasal orifices.

*Macleod Yearsley.*

**Gordon King.**—*The Treatment of Hay Fever by Dunbar's Antitoxin.*

**H. J. Dupuy.**—*Dunbar's Serum in the Treatment of Hay Fever.*

**Joachim.**—*Personal Observation in Dr. Dunbar's Laboratory.* "The New Orleans Medical and Surgical Journal," April, 1904.

These three papers are given in abstract. King reported good results in five cases of the autumnal type, and one of the hyperæsthetic or irregular type.

Dupuy considers Dunbar's experiments have made a distinct advance. His discovery does not disturb the triad of etiological factors:—(1) A neurotic predisposition; (2) A local anomaly in the upper air passages; (3) An external exciting cause.

Joachim says that he has repeated the experiments upon which Dunbar built his conclusions. He emphasises the prophylactic use of the antitoxin.

*Macleod Yearsley.*

## ACCESSORY SINUSES.

**Vernieuwe (Ghent).**—*A Case of Malignant Disease of the Accessory Sinuses.* "La Presse Otolaryngologique Belge," April, 1903.

A man aged sixty-seven complained of obstinate neuralgia of the right trigeminal, which had lasted three months, and of a discharge of pus from the right nostril. The middle meatus on that side was occupied by a growth of a pinkish grey colour bleeding readily when touched; it was removed with a snare, and proved on microscopic examination to be malignant.

A month later the growth had recurred, and was again removed. From this time the development of the tumour became very rapid, and it was soon necessary to take the patient into the hospital on account of hæmorrhages, attacks of bronchopneumonia, and symptoms of myocarditis. The seat of the tumour was found to be the maxillary antrum. Pain became more intense, and was located chiefly in the second division of the fifth. The anterior wall of the sinus began to bulge, and there was fugitive œdema of the right cheek. Then exophthalmos came on from yielding of the floor and inner wall of the orbit. There was papillary stasis followed by optic neuritis, loss of sensation, ulceration of the cornea, and finally destruction of the eyeball. The floor of the sinus was the last to yield, but eventually it was rapidly destroyed. The patient complained of difficulty of swallowing, also of violent pains in the right occipital region, but there were no motor or other phenomena suggestive of a cerebral lesion. He died, profoundly cachectic, between six and seven months after first coming under observation. *Post mortem*, the point of origin of the tumour could not be ascertained; it was found to have invaded the whole of the right ethmoid labyrinth and both sphenoidal sinuses, as well as the right antrum. It had entered the cranium through the posterior wall of the sphenoidal sinus, and also through the foramen ovale, producing purulent leptomeningitis at both these points. A focus of leptomeningitis existed at the chiasma, and the

brain substance itself was destroyed at the location of the uncus and the gyrus hippocampi. More recently the author had seen a woman aged seventy-three complaining only of tic douloureux, in whom rhinoscopic examination, made on account of recurrent epistaxis, disclosed the presence of a glandular carcinoma in the nose.

Chichele Nourse.

## LARYNX.

**J. Rozier (Pau).**—*Chronic Otitis ; Evidement ; Facial Paralysis following Curettage of the Sub-pyramidal Cavity ; Caries of the External Semicircular Canal with Labyrinthine Crises.* "Annales des Mal. de l'Oreille, du Larynx, du Nez, et du Pharynx," March, 1904.

In April, 1901, a woman presented herself complaining of violent pains in the head, so much so that sleep was rendered impossible.

Two years ago she had right influenzal otitis, and had been under treatment ever since.

Examination of right ear :—Meatus normal, Shrapnell's membrane perforated, fœtid pus flowing from attic and antrum, malleus adherent to promontory. Probing the attic revealed bare bone at the tegmen. The mastoid process was tender to pressure, and violent pains were complained of above the auricle. With the exception of a retracted membrane, the left ear was normal. Nose: active ozœna. Audition: Weber lateralized to the right, bone conduction on right side good, though Rinné positive. Acoumeter: Hearing stronger on the right side.

June 11.—Lermovez performed a radical mastoid operation. A large antrum was found filled with caseous pus, no cholesteatoma; its walls were in a state of osteitis. The attic was opened up, the malleus had gone; no granulations, tympanum was very carefully curetted, no fistulæ seen, aditus very large, no dehiscence of the Fallopian canal.

After recovery from the anæsthetic, it was noticed that the orbicularis palpebrarum on right side was weak. However, the aqueductus Fallopii had not been touched, either at the level of the spur nor above the stirrup. There had only been a single twitch during curettage of the posterior part of the tympanum. The curette had in fact entered a large sub-pyramidal cavity, and it was there that the facial was involved.

On June 13 there was complete facial paralysis on the right side.

On June 15 the case was investigated in the electrical department. Result: a partial reaction to degeneration.

Up to June 26 the condition of the operated area had been fairly satisfactory, but on that date considerable pain was experienced during dressing. Epidermisation had proceeded rapidly, but was retarded by some points of osteitis, one at the infero-external part just about the site of the tympanic ring, the other on the floor of the aditus. As regards the sub-pyramidal cavity, pus issued from it, and probing indicated foci of osteitis.

Despite cauterisation, curettage, and the elimination of some small sequestra, the osteitis extended more and more. The antrum and aditus were filled with fibrous tissue, and on October 4 a fistula was made out extending from mastoid to tympanum.

October 5.—The antrum and aditus were again curetted, and tamponed.

From December 5 to 15 the aditus tended to close again, and part was curetted, chromic acid being subsequently applied.

December 20.—Labyrinthine disturbance was in evidence. Examination was difficult on account of nervousness of patient. Nausea, no vomiting, Romberg negative, rotation of head or body to the left nothing unusual, when to the right patient tended to fall. Gait good, no staggering, no temperature. Aerial and bone conduction good: Weber lateralized to right; Rinne (?). Locally granulations were observed at the level of the aditus and near the stirrup, and bare bone was detected on the internal wall of the antrum.

December 30.—Labyrinthine trouble was still present, but the vertigo which had been troubling her had diminished; the nausea still continued. She was able to attend to her business.

In the course of the dressing a sequestrum was discovered in a position corresponding to the side of the external semicircular canal, which when touched with a probe caused the patient to feel sick and everything seemed to turn round her.

April 23.—The sequestrum came away spontaneously with the dressings, and patient from that time felt much better, and by December 9 had practically recovered.

*Apropos* of the labyrinthine disturbance the author remarks that at first it was believed the infection had taken place by way of the fenestra ovalis, but that the exfoliation of the external semicircular canal left no doubt as to the course taken.

There were several points of osteitis about the internal wall of the antrum, so that destruction of the external semicircular canal was not surprising.

The writer observes that this is an excessively rare occurrence, for generally it is during the course of evidement that an accidental opening of the labyrinth is brought about. As regards the wounding of the facial nerve during curettage of the subpyramidal cavity, the author believes this to be the first time a case of this sort has been cited.

In 120 temporal bones of adults and children examined, a sub-pyramidal cavity was constant and measured not less than 3 to 8 mm. in depth.

Absolutely hidden from view, the Fallopian canal and base of the pyramid form a kind of dome for it; sometimes a plate of compact tissue only 1 mm. in thickness separates the canal from the cavity.

From the important relationship which this cavity bears to the facial nerve, the author emphasises the importance of exercising the greatest care during operative manipulations about the postero-inferior part of the tympanum.

*Clayton Fox.*

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## EAR.

**Vacher, L.**—*Bezold's Mastoiditis; Erysipelas of the Face; Operation; Intravenous Injections of Collargol; Recovery.*—"La Presse Otolaryngologique Belge." January, 1904.

A woman, with chronic dacryocystitis on the left side, was attacked suddenly with deafness and acute pain in the left ear, which gradually extended over the whole of the left side of the head, with redness and swelling of the temporal region. There was fever, insomnia, and frequent vomiting. On the eighteenth day paracentesis, which gave exit to pus and blood, afforded temporary relief; but a few hours later suppuration from the ear became abundant with increased pain, fever, and vomiting.



At the same time the swelling invaded the auricle, the cheek, and the left eyelids, with an erysipelatous blush.

On the evening of the twenty-first day, when first seen by the author, the patient's condition was very grave. There was high fever ( $105.2^{\circ}$  F.) and a rapid feeble pulse. She complained of severe pain over the whole of the left side of the head and great tenderness. The mastoid region was œdematous and slightly red; the site of the antrum and the tip of the mastoid were particularly tender, and below the mastoid process pressure was unbearable. This region was infiltrated and the neck almost fixed. The auditory canal was full of pus. As an operation was impossible on the spot, the patient was removed about twelve miles to the hospital, where an operation was immediately performed. The antrum, which contained a little pus, was first opened; the affected cells were then followed down and the whole tip of the mastoid process removed to the digastric groove, where a perforation was found in the bone, and a purulent focus going as far as the sheath of the facial. The whole of the cortex was removed, but the sinus remained covered by a layer of healthy bone. The radical operation was then completed by exposing the antrum, aditus, and attic. The next day the symptoms continued, and the wound was found quite dry. The lateral sinus was explored and found to be healthy. The almost desperate condition of the patient was, therefore, due to the erysipelas, which was extending. Two cubic centimetres of 1 per cent. solution of collargol were then injected into a vein at the bend of the elbow, after which vomiting ceased. This injection was repeated daily for four days. During that time the erysipelas continued to spread until nearly the whole head was involved, and two abscesses formed and were opened. The temperature, however, gradually fell, the patient's condition improved, and the wound took on a healthy action. On the fifth day after the operation everything was satisfactory, and from this date progress was uninterrupted.

The author considers that the cause of the otitis, which followed influenza, was infection from the lacrymal passages; and that the paracentesis, performed without antiseptic precautions, was responsible for the erysipelas.

*Chichele Nourse.*

## THERAPEUTICS.

**Urbantschitsch** (Vienna).—*The Action of Thigenol in Ear Disease.*  
"Monatschrift f. Ohrenheilkunde," November, 1903.

Thigenol is an excellent remedy in the treatment of chronic middle-ear suppuration. The suppuration quickly subsides even in cases which have resisted treatment with silver nitrate, hydrogen peroxide and salicylic alcohol.

The results obtained by using this remedy in acute inflammations of the middle ear in which there was no perforation, were surprisingly good. The astringent and absorbent action of thigenol produced an alleviation of the symptoms (pain, etc.), and lessened the severity of the disease so much that in some cases paracentesis was not necessary. Instillations of thigenol in diffuse inflammations of the external auditory meatus were followed by cure in a comparatively short time. It is an excellent remedy for eczema of the auricle and for pruritus. *A. Westerman.*

THE  
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**ON SOME POINTS IN THE DEVELOPMENT OF THE TYMPANIC  
PLATE AND THE MASTOID.<sup>1</sup>**

BY PROFESSOR JOHN CLELAND, M.D., LL.D., F.R.S.,

Professor of Anatomy in the University of Glasgow.

ALTHOUGH the growth of the tympanic plate has at different times received attention from a number of observers, including Humphry, von Troltsch, Zuckerkandle, and Symington, the curious way in which it is developed seems scarcely even now to have come thoroughly home to anatomists, and may possibly in some points not have come so explicitly as they might desire under the notice of the specialists whom I have the honour to address.

It will be recollected that at birth the internal and the middle ear, like the eyeball, have already advanced much nearer to their adult size than the parts around them. Thus the membrana tympani has already reached nearly its adult size. But the tympanic plate is at birth a mere ring, imperfect above, and adherent to the squamous by osseous union of the extremities bounding the open part of its circuit. It presents on the concavity of its curve a deep groove, just as in the adult, for the attachment of the membrana tympani, but is slender, extending neither outwards nor inwards beyond this groove; and in its position the tympanic membrane is much more nearly horizontal than afterwards, as, indeed, might be expected from the narrowness of the base of the infant skull as compared with the breadth of the brain above. At

<sup>1</sup> Communicated to the Otological Society of the United Kingdom, May 21, 1904.

a later period the whole floor of the osseous portion of the external auditory passage is formed from bone growing from the tympanic ring and is roofed by the squamous, but there is no osseous portion of the external ear for some time after birth. At birth the whole cartilage of the external ear has much the form that it has in the adult, and is proportionate in size to the size of the skull. At its deep end the cartilage is attached superiorly to the squamous, close to the upper edge of the membrana tympani; but the diameter of the tube which it encloses being less than an eighth of an inch, its lumen is scarcely at all opposite that membrane, but suddenly expands into a fibrous sheet attached to the outer edge of the tympanic ring and lying face to face with the membrane, separated from it by only a narrow space. The hairs, which are abundant in the tube, filling its lumen, suddenly cease at the entrance into the flattened expansion opposite the membrana tympani, so that there is much protection to the young ear from violent sonorous vibrations. It often happens in preparing dried specimens of infantile skulls that the fibrous outer wall of the deep expansion or chamber of the external ear is left on accidentally and might pass for the bare membrana tympani were it not that a small opening is always to be seen at the upper and outer edge, and usually the membrana tympani will be found underneath it with the handle of the malleus in position.

Humphry, in his work on "The Skeleton," seems to have been the first distinctly to point out how the fibrous wall of this expansion becomes ossified. He writes (p. 266): "At birth we may commonly discern small dentated processes jutting out from the concave edge of the tympanic bone at its fore and hinder part. These processes, growing beneath the membrana tympani, and approaching one another, shortly coalesce so as to form a more or less broad bar or plate, extending across the floor of the auditory passage." He then points out how there is at first left between the external auditory process thus developed and the lower edge of the tympanic ring, a gap of which a trace is sometimes found even in the adult. While, however, the story of the floor of the osseous external auditory passage is thus clearly told, the history of its roof seems to have been always left to the imagination. It is due to growth in breadth of the horizontal lower part of the squamous, accompanied by a diminution of obtuseness of the angle between that portion and the ascending scale from which the squamous takes its name. The adult form of the auditory passage is brought about partly by this means and partly by increase in diameter of its cartilaginous part.

Let us now study for a moment the growth of the mastoid process. At birth its tip alone is indicated by a minute tubercular elevation limited below by a short line; and this tubercle is so situated that a line continued back from the lower border of the zygoma would pass through it. Such a line would also touch the upper margin of the external auditory meatus. If between this line and that which is to be seen passing backwards and upwards from the upper margin of the zygoma the bone be cut into, a cavity will be opened to view, namely, the vestibule of the mastoid, roofed by the inwardly curving lower edge of the squamous bone, which slopes downwards as it passes forwards, leaving less and less of an "attic" above the malleus and incus. The posterior process of the incus is attached to the floor of the entrance into the vestibule at a point indistinguishable from the rest of the petro-mastoid with which it is now incorporated, but originally the root of the styloid process, and forming a bar continuous with the incus, as pointed out by me in Cleland and Mackay's "Human Anatomy." At this level at birth there is nothing to represent mastoid cells, but within two or three years a solid process projects downwards behind the auditory meatus, and not until a considerably later period do the mastoid cells begin to be hollowed out, while the process becomes swollen and ultimately reaches a distance half an inch or more below the floor of the meatus.

At birth the branches of the posterior auricular artery are close to the bone. In early years little grooves may often be seen where its branches are becoming imbedded in the new layers of osseous tissue which are being added superficially while absorption is going on within. As growth advances, irregular marks are left on the mastoid process, especially on the anterior and lower part; and these are sometimes of a striking appearance, and have been mistaken for the remains of a line of union between the mastoid and a supposed descending process of the squamous. This, however, is a complete mistake. The squamous element while it is yet separable has a small projection straight backwards, beneath a slight notch which lies between it and the part of the posterior border which curves upwards. It is true that this process may increase in length and turn downwards, but not further than half way down the posterior wall of the meatus, and in close connection with the tympanic plate. The petro-mastoid is completely united with both squamous and tympanic long before the growth of the mastoid process is completed, and the marks referred to have nothing to do with the squamous element. They arise, no doubt, from the branches of the posterior auricular artery being buried



in the additional layers added to the surface of the mastoid process, while the deep twigs have to supply the mucous membrane of the cells hollowed out in the interior.

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### THE TREATMENT OF DULNESS OF HEARING AND SUBJECTIVE NOISES IN THE EARS BY HIGH FREQUENCY CURRENTS.

BY JAMES GALBRAITH CONNAL, M.B., F.F.P.S.G.

Lecturer on Aural Surgery, Anderson's College Medical School, Glasgow.

THE following observations were made in conjunction with Dr. James R. Riddell, Medical Electrician to the Glasgow Royal Infirmary, to determine, if possible, the influence of high frequency currents in the treatment of dulness of hearing, and subjective noises in the ears.

The cases were not selected in the sense of being considered to be cases favourable for treatment. In every one of them other methods of treatment had been employed but found ineffectual. For instance, in chronic dry catarrh of the middle ear, catheterisation of the Eustachian tube, or inflation of the middle ear by Politzer's bag, had been tried. In nearly all cases complaining of tinnitus aurium, drugs, such as the bromides, hydrobromic acid, or strychnine had been used unsuccessfully. In addition, any nasal defect which might possibly have an influence on the aural condition was rectified. If recognised methods of treatment failed to effect any improvement on the dulness of hearing or lessen the subjective noises these patients were sent to Dr. Riddell.

It will therefore be seen that, for treatment by high frequency currents, the cases were of a class not readily influenced by ordinary methods of treatment. Notes were taken of the tuning-fork reactions; the hearing distance of the watch was also noted, and this was checked after the treatment had been discontinued.

In all, forty cases were treated. I have been unable to follow the results in eight of the cases, owing to the patients either discontinuing the treatment, or failing to report themselves after the treatment was finished. This leaves thirty-two cases.

The types selected were (1) chronic dry catarrh of the middle ear with secondary labyrinthine involvement; (2) chronic dry catarrh of the middle ear without marked labyrinthine involvement; (3) sclerosis of the middle ear; (4) post-suppurative conditions of the middle ear (the purulent process having ceased), leaving a

cicatrix or a dry perforation with or without calcareous deposit in the tympanic membrane; (5) primary labyrinthitis (traumatic); (6) tinnitus without dulness of hearing.

In all the patients selected both ears were involved, one ear being generally worse than the other. In two cases, though both ears were involved, there was a different disease on either side, namely, a chronic dry catarrh on one side, a post-suppurative condition on the other.

1. *Chronic dry catarrh of the middle ear with secondary labyrinthine involvement.*—These patients (six in number), in addition to marked defect in hearing, had tinnitus. Some had occasional attacks of giddiness. Result.—No improvement in the hearing in any of them. In four, the tinnitus persisted; two patients thought the noises were slightly lessened, but were very indefinite about it.

2. *Chronic dry catarrh of the middle ear, without marked labyrinthine involvement.*—(Fourteen cases). In ten, no improvement in the dulness of hearing; one said she was worse; two noted a slight improvement in the hearing. On the other hand, one patient said she heard much better, but this improvement was not appreciable by any tests that were applied. Ten of the fourteen patients complained of tinnitus of various types, though the prevalent type was a low-pitched hissing sound. Of these ten patients with tinnitus, eight reported an improvement—that the noises were not heard so loudly; two of the eight said they were “much better.” In only one case did the noise disappear entirely, namely, a female patient with tinnitus likened to steam escaping, and occasionally a beating or ticking sound. The noise persisted in the right ear, but ceased in the left ear for six weeks, when it recurred.

3. *Sclerosis in the middle ear.*—(Five cases). One patient said she heard much better, but on testing with the watch the improvement was not apparent. The patient and her mother, however, were emphatic that she heard much better. Unfortunately in this case the hearing distance for the voice had not been noted previously. The other four patients reported an improvement in the hearing, which was confirmed on testing with the watch. There was also a decided improvement in the tinnitus.

Lizzie I—, aged twenty-two.—Ringing noises in the right ear for four years, but did not consider herself dull of hearing till one year ago. W. R.  $\frac{1}{40}$ , W. L.  $\frac{20}{40}$ . Tympanic membranes little altered in appearance from normal. Eustachian tube free. With treatment the hearing improved in right ear to W. R.  $\frac{6}{40}$ , W. L.  $\frac{20}{40}$ . The tinnitus, like bells ringing, however, was persistent. After an interval of time, and no further improvement being noted, she was

sent to Dr. Riddell for the high frequency current; she was greatly benefited by the treatment. Tests showed W. R.  $\frac{1}{40}$ , W. L.  $\frac{2}{40}$ . She has had no ringing noises in the ear for four months.

Mrs. M. L.—, aged twenty-six.—Noise like steam escaping in the left ear, of one year's duration. Lately noise has begun in the right ear. Dulness of hearing in both ears, W. R.  $\frac{4}{40}$ . W. L.  $\frac{3}{40}$ ; tympanic membranes, especially left, appear somewhat indrawn. Nose and nasopharynx normal. Eustachian tube quite patent. Inflation of the middle ear by catheter lessened the sounds slightly, but only temporarily. Inflation had no influence on the dulness of hearing. After treatment by high frequency currents she said the noise was not nearly so loud, and that she heard better W. R.  $\frac{0}{40}$ , W. L.  $\frac{2}{40}$ .

Janet S—, aged twenty-eight. Deafness in left ear of two years' duration, and in right ear of one year's duration. Never had tinnitus. W. R.  $\frac{3}{40}$ , W. L.  $\frac{4}{40}$ . Nose and nasopharynx normal. Eustachian catheter passes easily and shows tube quite patent. Diagnosis: Chronic dry catarrh, but more of the sclerotic type. She derived no benefit from inflation of the middle ear, but after treatment with high frequency current there was a decided improvement noted, W. R.  $\frac{30}{40}$ , W. L.  $\frac{16}{40}$ . I tested the hearing distance with the watch on several occasions, and though there was a slight tendency to guesswork which I could not exclude, still I think the result stated may be taken as correct. For conversational tones and whispered conversation the hearing was very good. The patient herself affirmed that she heard splendidly.

Annie V—, aged twenty-seven. Deafness in both ears of four years' duration. Beating tinnitus in the left ear, W. R.  $\frac{3}{40}$ , W. L.  $\frac{3}{40}$ . Tympanic membranes almost normal in appearance. Catheter passes freely but does not improve hearing. After high frequency currents said she heard better. W. R.  $\frac{5}{40}$ , W. L.  $\frac{3}{40}$ . Tinnitus almost entirely away.

4. *Post-suppurative condition of the middle ear* (seven cases).—Four, as the result of treatment, reported a slight improvement in the hearing, and examination showed a fractional increase in the hearing (fractional=up to one inch); five of the seven cases had tinnitus, and four of these five reported themselves as much better.

One case of primary labyrinthitis (traumatic), and one case of tinnitus without dulness of hearing derived no benefit from the treatment.

To sum up, in trying to estimate the benefit obtained from the treatment by high frequency currents it must be remembered that

the class of case chosen was one not readily amenable to treatment. The majority of the patients had chronic dry catarrh of the middle ear, with, in some cases, secondary labyrinthine involvement. It is unnecessary to point out to those present who have experience of the outdoor department of an Ear Hospital, with what persistence these cases attend in the hope of getting some relief, either from the dulness of hearing or the subjective noise. Hence it is necessary to allow for the mental factor in estimating the improvement said to be the result of treatment. Our methods of testing dulness of hearing, though not perfect, are fairly satisfactory, but unfortunately we have no means of testing either the accuracy or the extent of the subjective noise. With regard to the latter we must accept the patient's statement.

Taking then the chronic dry catarrhs with secondary labyrinthine involvement (six patients), there was no improvement in any of them. Two patients, however, thought the tinnitus was slightly lessened.

Ten of the cases of chronic dry catarrh had tinnitus. Eight of these ten reported an improvement in the tinnitus, two being much better. In two of the fourteen cases a fractional improvement in the hearing was noted. This improvement may have been due to the lessening of the subjective sounds.

In post-suppurative conditions five of seven patients had tinnitus and four of these five reported themselves as much better. In four cases there was a fractional improvement in hearing.

In sclerosis of the middle ear all five patients reported an improvement in the hearing, which was confirmed on testing—with one exception to which I have already referred, where both the patient and her mother were positive as to the improvement, but on testing with the watch I was unable to confirm it. Regarding the others the improvement was marked in three, and slight in one. Those patients who had tinnitus all derived benefit. In one case which I have quoted where there was persistent tinnitus before the treatment, there has been no noise for the last four months, and the improvement noted in the hearing has been maintained.

The number of cases of this type (sclerosis) is too small to do more than suggest further investigation. Still, it is hopeful, and to myself the results were rather surprising, so much so that I tested the patients on several occasions.

In all the groups examined it will be noticed that the greatest benefit was obtained in the treatment of subjective



noises. Taking these *en masse*—apart from the types—twenty-six patients complained of tinnitus, and of these seventeen were improved. In one case the noise was not heard in the left ear for a period of six weeks, when it recurred; in another patient there has been no tinnitus for four months.

I am aware that the results obtained are rather better than those got by other observers, but I would urge that there is something in how the current is applied. I have the less hesitancy in emphasising this point as the electrical treatment was entirely carried out by Dr. Riddell, and was in accordance with his ideas.

As is known, the common method of applying the current is by means of the *effleuve* (or spray). This was the method adopted in our earlier cases, but it was found unsatisfactory. Dr. Riddell then introduced a method which, so far as we know, has not been used in ear work—by means of a condenser electrode placed in each ear. It is probable that in this way the current is more completely concentrated on the ears. This latter method gave better results. The case of sclerosis which I have already quoted was first tried by the *effleuve* without any effect, but after eight applications with the condenser electrode in the ears the noise ceased. Other patients in like manner affirmed that it was the method which did them most good.

The treatment is purely empirical, but I think it is worth a trial on the lines on which Dr. Riddell worked.

In conclusion I have to thank Dr. Riddell for the interest he has taken in the investigation.

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### **SUPPURATIVE DISEASE OF THE TEMPORAL BONE, WITH THE PRINCIPAL EXTENSION INTO THE PETROUS PORTION.<sup>1</sup>**

BY RICHARD LAKE, F.R.C.S.ENG.

THE patient, a lad of nineteen, presented himself at the hospital, suffering from slight discharge from the left ear and attacks of vertigo.

*Previous history.*—The history he gave was that nine years ago he was struck in the left ear with a tennis ball. A week or so afterwards he had an attack of influenza, with severe pain in his left mastoid, but he states that at no time did he have any dis-

<sup>1</sup> Communicated to the Otological Society of the United Kingdom, May 21, 1904.

charge from the ear. The pain continued for four months, always coming on about eleven o'clock at night, and lasting for about an hour, gradually increasing in severity. He became unconscious one night, and was operated on the next by Mr. Stanley Boyd, who has been kind enough to give me the following particulars:

Seen with Dr. Michie December 3, 1903. Had suppurative otitis media two months ago (side?). Membrane perforated; discharge; got better for a month. After a tram ride severe pain returned, with fever and swelling behind ear. This swelling varied. Pain, fever, and loss of sleep said to have rendered him weak and anæmic. Has had one, perhaps more, rigors.

I found him very pale and weak. Little discharge from meatus; no swelling over mastoid. Swelling and tenderness below ear, where a gland is enlarged. No signs of cerebral abscess.

Pinna turned forward by usual incision. A little pus escaped. Collection probably drained imperfectly into external auditory canal. Antrum opened: it was large and lay low. It was cleared out, iodoformed and plugged. I did not see the boy again.—S. BOYD.

*Present state* (1904).—The operation wound healed satisfactorily, and the boy was relieved of his pain. He has been suffering with attacks of vertigo for some months.

On examination the external meatus was stenosed about half an inch down, an orifice about the size of a pin-head only being left, from which exuded a thin and slightly offensive discharge.

He was admitted into the hospital, and on March 1 put under an anæsthetic. On reflecting the ear, the bone was found to be as dense as I have ever seen it, and showed traces of the old operation. When one arrived at the level of the stenosis, one found that the bony canal itself was much stenosed, and that the hole in the membranous meatus was plugged by a dense mass of inspissated pus and epithelium. The extreme density of the bone rendered it easier now to have resource to the burr. The bony meatus was cut out to its right level below, and the radical mastoid operation performed as rapidly as possible. The antrum itself was extremely small. The whole of its cavity, and that of the middle ear, was full of cholesteatomatous material, and a large sinus was found leading deep into the petrous bone. The diseased bone in this region was rapidly cleared away, and as a result the upper surface of the external semicircular canal was exposed in its entirety, the major portion of the posterior canal also; the superior, however, was not brought into view, the external semicircular canal having the appearance of being supported on a pillar of bone, which contained the facial nerve. The bony canals were almost of a dazzling whiteness.

The wound was treated in the ordinary way and grafted on

the fifteenth day, the condition of the wound showing no features of interest. The case, however, is one of considerable interest, as being one of a class of cases which seem to form a link between intra-labyrinthine suppuration and necrosis of the labyrinth; for had this case proceeded, unrelieved by operative measures, one of two endings must have followed—either the pressure of the cholesteatomata would have caused an erosion, and eventually penetration of one of the semicircular canals, thereby setting up an intra-labyrinthine suppuration, or the infective osteitis would have invaded and destroyed the cancellous bone surrounding the labyrinth, thereby cutting off its nutrition, and necrosis of the labyrinth would have followed. Or even a third local condition might have followed, which would have been a combination of these two. Cases somewhat similar have been recorded both on the Continent and in America.

It may be interesting to mention here in this connection that it was impossible to see the foramen ovale even when all hæmorrhage was controlled and the parts quite dry.

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### A CASE OF TINNITUS AND VERTIGO TREATED BY DIVISION OF THE AUDITORY NERVE.

BY R. H. PARRY, F.R.C.S.ENG.,

Surgeon to the Victoria Infirmary, and Surgeon to the Royal Hospital for Sick Children, Glasgow.

S. D.—, aged thirty, engineer, was recommended for treatment in February, 1902, by Dr. Jones of Glasgow, who in his letter expressed a hope that something might be done by operation to relieve his condition, as all other forms of treatment had failed.

The patient stated that he had enjoyed excellent health until six years ago, when one day he was suddenly seized with giddiness while he was lighting his pipe. He was not far from his house at the time and managed to stagger to it. While the attack was on him everything seemed to be turning round. During the next six months he had several such attacks, and he had finally to give up work for two years. The giddiness became more or less constant, affecting him more particularly when walking. He improved somewhat towards the end of that period, and was able to resume work and to remain at it for two years.

A year ago he was again obliged to give up work owing to the frequency of the attacks of vertigo. He complained of noises in

the left ear, but only occasionally in the right. He had always been partially deaf in left ear, from which there had been a discharge until two years ago. There is no history of alcoholism or syphilis. During the three weeks in which he was under observation before operation his suffering remained as great as before admission; and it was made absolutely clear to us that he had in no way exaggerated his misery. He expressed anxiety to be relieved of the pain in the back of his head and the vertigo, which affected him both at rest and while walking about in the ward.

Three methods of treatment were discussed, and their relative value as affording the best prospects of relieving the pain, tinnitus and vertigo were carefully considered. Most of the drugs known to have any effect in relieving tinnitus had been tried with only unsatisfactory results, and so it was decided not to return to internal medications.

Ablation of the mastoid and semicircular canals was next considered, in view of the fact that there had been a discharge of pus from the left ear, and that under treatment for that the patient had for short periods found slight relief. The relief, however, was very temporary, and ultimately the treatment afforded him none.

The fact that a mastoid operation had not been carried out suggested that, in the opinion of the several medical men who had seen him, the seat of the trouble lay deeper, and that a simple mastoidectomy would not bring about the desired result. On the value of the removal of the semicircular canals no opinion could be offered, nor at the time (two years ago) could any information be obtained as to the probable effect of such a procedure.

As will have been gathered, this was a severe case of tinnitus, and the effect of prolonged suffering had made the patient unwilling to submit to operative treatment which held out the prospect of only partial relief. The possibility that the condition might be dependent on a central cause, primary or secondary, was not overlooked, and it was agreed that if the patient remained unrelieved by division of the auditory nerve one would be justified in adopting this view; whereas, from the results of ablation of the mastoid and semicircular canals, such a conclusion could not be arrived at, as filaments of the nerve might still have been intact. It was hoped, in the first place, that division of the nerve would effect a cure, while if it failed to do so something would have been gained as to the seat of the irritation.

The evolution of the treatment of trigeminal neuralgia is instructive, and the present opinion is that in severe cases of that



disease it is better to attack the nerve within the cranium rather than to divide its branches on the face. The analogy may be, and probably is, incomplete, but it is only right to record the basis upon which the treatment in this case was worked out.

The difficulties and risks attending the operation, together with the chance that it might not be effective in giving relief, were explained to the patient; he, however, expressed the desire that the attempt should be made, and accordingly the operation was carried out.

The question of the route by which the auditory nerve could be reached was next discussed. The three most feasible routes were through (a) mastoid, (b) posterior fossa, (c) middle fossa. The first would have involved an extensive bone operation, and would necessarily have been a long and tedious one to perform, while the danger of wounding the sinuses was a serious objection to it; also the presence of bone on the one side and dura mater on the other, made it practically impossible to retract the parts sufficiently to obtain the good view of the auditory nerve which was indispensable owing to its intimate relation to the seventh nerve. By the second route the dangers of wounding the sinuses were minimised, but on examination of the parts on the cadaver it was found that the auditory nerve was at a depth of an inch and a half from the trephine opening, which was made immediately below the curve of sigmoid sinus. The removal of bone in the direction of the foramen magnum did not materially shorten the distance from the occipital bone to the internal auditory meatus, while it tended to give a deeper wound, as measured from the skin, owing to the thickness of the soft tissues of the neck. In working at that distance from the surface, and with no definite landmarks as guides, it would have been necessary to considerably displace the left lobe of the cerebellum in case of damage to the structures entering the jugular foramen. In the author's experience, in operation on the living subject, undue pressure on the cerebellum is attended with risks of laceration owing to the fact that it is maintained within a space the walls of which are rigid and unyielding. The third route, that through the middle fossa, was the one selected. The points in favour of it were that less difficulty was anticipated as regards hæmorrhage, that it was the shortest route to the external auditory meatus (an inch and a quarter from squamous bone), and that the parts could be better retracted, so affording a good working field.

The steps of the operation were as follows: A curved incision with the convexity upwards was made from the centre of the zygomatic arch to the base of the mastoid close to the parieto-

squamosal suture. The squamous portion of the temporal bone was drilled in six places and the intervening bridges of bone divided with a Hay's saw. The bone was then raised with elevators, when the undivided portion fractured and so permitted an osteo-cutaneous flap to be turned downwards. The dura mater was separated from the surface of the petrous portion as far as the promontory caused by the superior semicircular canal. On removing the roof of the tympanic cavity an excellent view was obtained of that space, and it is interesting to note that it was possible by that method to determine the presence of pus or granulation tissue in the middle ear. More bone was removed in the direction of the mastoid antrum, but as no evidence of active disease was found either here or in the middle ear the fear that a septic focus had been left *en route* was set at rest. A plug of gauze steeped in 1:20 carbolic was introduced into the middle ear as a further preventive measure against infection of the wound. The dura mater was punctured to allow of the escape of cerebro-spinal fluid, thereby permitting of the better displacement of that membrane and the brain. The separation of the dura mater from the upper border of the petrous bone required considerable care, as it was here that some apprehension was felt as regards hæmorrhage. The superior petrosal sinus in the majority of the bones examined had been found to groove the outer half of the bone, while in the remainder the grooving was continued over the internal auditory meatus. To obviate, as far as possible, puncturing the sinus by raising it from the bone, the bone was divided and gently removed from it. The dura mater of the middle fossa, the tentorium, and the superior petrosal sinus were drawn aside by retractors. Some bleeding certainly took place from, I believe, some branches of the sinus, but it was soon arrested by the pressure of small plugs of aseptic gauze. The roof of the internal auditory meatus was next removed, when the seventh and eighth nerves were easily recognised. The eighth nerve was drawn aside and could have been divided then, but owing, perhaps, to the fact that no untoward accident had occurred and to the desire to sever completely the vestibular and cochlear divisions, more bone was removed; but unfortunately, the detached portion proved to be the commencement of the Fallopian aqueduct, and in the withdrawal of it the seventh nerve was torn. This regrettable, and, it may be added, avoidable accident, permitted of a very thorough examination of the nerves in that opening. The plug was removed from the middle ear and iodoform gauze introduced in its place through the external meatus. The flap was then replaced and its edges sutured, except at the

lower angles, where a strip of iodoform gauze served for drainage. The patient passed a restless night and complained that he felt giddy when he opened his eyes. Left facial paralysis was complete. During the following week he improved considerably, but the noises in the ear were present, although lessened in degree, and the vertigo persisted.

As regards the wound, it was completely healed on the tenth day, when the stitches were taken out. The temperature remained normal throughout.

For fully a month he was kept at rest, although in the third week he was most anxious to get up, declaring that he felt quite equal to it.

When allowed to move about again he still complained of giddiness and the noises in the head. The general opinion was that he was better, although, in his anxiety for a complete cure, we found it difficult to get him to admit it.

He reported himself at intervals of two months for about a year, and, although the symptoms had modified somewhat, they were still sufficiently in evidence to cause him considerable annoyance. At the end of that period he was induced to undergo a second operation in order to overcome the facial paralysis. The spinal accessory nerve was divided and attached to the facial close to the stylo-mastoid foramen. He has no voluntary power over the facial muscles; they move in association with the movements of the shoulder. He has been at work for some months since his last operation, but in respect of the three symptoms—pain, tinnitus, and vertigo—for which he was treated the operation has considerably relieved the two first, but not, to any extent, the third.

The present is, as far as can be ascertained, the first in which the auditory nerve has been divided in the living subject. Two cases have been reported recently, but both ended fatally. It would be unwise to deduct too much from one case, but one may venture to hope that there are some points in this case of interest to both otologists and surgeons.

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## RÉSUMÉ OF PRACTICAL DEDUCTIONS FROM OUR RECENT KNOWLEDGE OF SUPPURATION OF THE LABYRINTH.<sup>1</sup>

BY DUNDAS GRANT, M.D., F.R.C.S.

SUPPURATION in the labyrinth has, no doubt, been often overlooked because not thought of or looked for. Jansen and Lucae have

<sup>1</sup> Introduction to discussion at the forthcoming International Otological Congress.

discovered its relative frequency. Whitehead's recent statistics indicate a less degree of frequency. The mortality without operation is about 50 per cent., reduced by operation to nearer 20.

*Relation to meningitis.*—Statistics of frequency with which subjects of labyrinthine suppuration die of meningitis (Jansen 62 per cent., Whitehead 36 per cent. fatal cases). Frequency with which fatal otogenous meningitis is due to labyrinthine suppuration (Heine 42 per cent., Whitehead 27 per cent.). Practical deduction: Treatment of serous meningitis should (after radical mastoid operation) include, in addition to lumbar puncture, the opening of the labyrinth (Jansen, Brieger).

*Relation to cerebellar abscess.*—Frequency with which death in labyrinthine suppuration is due to cerebellar abscess (Hinsberg 12.5 per cent., Whitehead 54 per cent.). Frequency with which cerebellar abscess is due to petrous caries, mostly with involvement of labyrinth (Okada 56 per cent., Whitehead 71 per cent.). The remaining cerebellar abscesses due to sinus-phlebitis. Practical deduction: In cases of cerebellar abscess without sinus-phlebitis drainage should be effected through an opening in the median wall of the antrum and the labyrinth evacuated, or at least carefully explored.

*Prophylaxis. To prevent labyrinthine suppuration.*—Care in treatment of middle-ear suppurations, acute as well as chronic. Perform radical mastoid operation in good time, especially if vertigo, vomiting, headache, or nystagmus are present. Care in performance of mastoid operation to avoid damaging external semicircular canal unintentionally; also to diminish concussion as much as possible by using the rotating bur (*fraise*) as much as possible, and having the chisels very sharp.

*Early detection of labyrinthitis.*—Before mastoid operation: Study patient's equilibrium, nystagmus, etc. Test hearing power for various tones by ear- and bone-conduction. (Do not be influenced by Weber's test.) During mastoid operation: Examine carefully the usual sites of invasion of the labyrinth (external semicircular canal, fenestræ ovalis and rotunda, etc.). For this purpose remove as freely as possible the outer wall of the attic and the "spur," use powerful illumination, and effect complete hæmostasis by means of supra-renal extract. Suspect labyrinthine suppuration if vertigo, vomiting, or nystagmus are present and not accounted for by the changes found in the middle-ear cavities. After mastoid operation: Suspect labyrinthine suppuration if headache, pyrexia, vertigo, vomiting, or nystagmus persist or set in. Note resemblance between symptoms of suppurative labyrinthitis



and those of cerebellar abscess. Points of difference: Labyrinthitis much more frequent than cerebellar abscess; the two sometimes combined. Suppurative labyrinthitis is sometimes latent, only revealing itself by the occurrence of meningitis.

*Indications for Operation.*—In general, certainty that there is pus in the labyrinth. Severe labyrinthine symptoms unaccounted for, or unrelieved by, mastoid operation, especially if there is pus from oval window or black line shining through from semicircular canal. Presence or threatening of symptoms of meningitis, cerebellar or cerebral abscess, or extensive extradural abscess traceable to labyrinthine suppuration. Local changes found on operation, such as unmistakable fistula and suppuration. In general, if pus oozes, and especially if it wells up after being wiped away, it should be "followed up" (Ballance).

*Cautions.*—Evacuation of the labyrinth, unless required, adds to the risk of the operation. Suppuration is often limited to the external semicircular canal—a condition in which recovery is frequent (Jansen). Labyrinthine suppuration may be prevented from extending to the meninges by inflammatory connective-tissue formations in the internal auditory meatus (Schwartz). Openings of minute cells on the mesial wall of the antrum are apt to be mistaken for fistulæ of the semicircular canal (Friedrich). "Nerve-deafness" may be due to an inflammatory but non-suppurative condition of the labyrinth (Heine); hence not, as such, a strong indication.

In the *operation* the rotating bur (*fraise*) has been proved to be of the utmost practical value (Jansen, Botey, Lake, Milligan, etc.).

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VISIT OF FRENCH PHYSICIANS AND SURGEONS TO LONDON.—A representative party of French Physicians and Surgeons will visit London for the purpose of seeing the various hospitals, medical schools, and laboratories on October 10, 11, and 12, 1904. Among them will be a number of well-known laryngologists and otologists, and it is hoped that the representatives of the specialities in London will join in helping to make the visit as interesting and agreeable as possible. Sir Wm. Broadbent is the Chairman of the Committee formed to organise the reception, which will include a banquet. The Secretaries are Dr. Dawson Williams and Dr. Jobson Horne, and the Treasurers Sir Thomas Barlow and Dr. Dundas Grant. Subscriptions towards the expenses may be sent to either of the latter.

## SOCIETIES' PROCEEDINGS.

### PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

*Ninety-first Ordinary Meeting, June 3, 1904.*

P. McBRIDE, M.D., F.R.C.P.Ed., *President, in the Chair.*

The following cases and specimens were shown :

Dr. STCLAIR THOMSON showed a *Case of Complete Submucous Resection of a Spur and Deviation of the Septum.*

The patient was a gentleman aged twenty-six who complained of many of the symptoms of nasal obstruction. He had previously had adenoids removed at the age of sixteen, and had consulted two leading laryngologists for his nasal stenosis. They had informed him, after ordering nasal douches and using the galvano-cautery, that nothing more could be done for him. His left nostril was so obstructed that he had never been able to blow it, and was therefore compelled to clear it by hawking out through his mouth. The septum was so deviated to the left side that even after the use of cocaine and adrenalin the middle turbinal remained invisible. On this deviation was a long, low horizontal spur pressing into the inferior turbinal so deeply that it was impossible to say whether there might not be an adhesion.

Submucous resection was performed. The spur was found to run far back, and the stenosis was not overcome until the vomer was reached and, in part, clipped away. The right maxillary nasal process, which was prominent, was found difficult of removal. In separating the mucous membrane from the concavity (*i.e.* on the right side) it was found so adherent that a small button-hole was made. However, when the two muco-perichondria were placed in apposition the defect in the right one was made good by the intact condition of the left, so that no button-hole resulted. Three stitches were introduced and no plugs were used. The specimen handed round showed the spur and the fragments of deviated septum. When healing was complete the fleshy septum was found to be quite plumb in the middle line; the left middle turbinal was clearly defined; and even the pharynx on the left side was visible from the front. A fair sized polypus, with some yellow

pus around it, came into view. This was snared away. As the patient still complained of obstruction in the opposite (right) nostril, the inferior hypertrophic margin of the inferior turbinal on that side had to be removed.

Dr. Thomson said the patient now had a very free air-way, and that it was better on the left—the formerly obstructed side. The explanation doubtless was that the inferior turbinal on that side was small from compression, while the right was still large from the compensatory hypertrophy it had undergone. The fleshy septum was seen to still quaver when the patient sniffed, and members could satisfy themselves with a probe that the cartilaginous and bony septum had been removed to quite far back in the nose.

Dr. D. R. PATERSON showed a guarded knife recently introduced by Professor Killian for the removal of the cartilage after the separation of the perichondrium, which considerably facilitated that part of the operation. Local anæsthesia should be employed where practicable, as it gave a better view of the parts and shortened the proceedings. This operation is applicable not only to extreme cases but, in moderate degrees of deviation, a good result may be obtained in a comparatively short sitting under local anæsthesia.

Dr. H. SMURTHWAITE thought that the majority of these cases could be done under local anæsthesia alone, without resorting to chloroform or ether. It reduced the time of the operation. All the cases he had done, some six in number, had been performed with the patient sitting in the consulting-room chair. He first applied a 5 per cent. solution of cocaine to produce a superficial anæsthesia, then rubbed in adrenalin, and finally injected 15 to 20 minims of a 2 per cent. encaine  $\beta$  hydrochloride, which has most of the advantages of cocaine and none of its defects. After this procedure the cartilage could be removed practically painlessly, and the patient was able to leave the consulting-room feeling comparatively well.

Dr. STCLAIR THOMSON, in reply, said he was very pleased to see Professor Killian's instrument, which appeared to him excellently designed for removing the exposed septum, and so making the operation shorter. As it was at present, after the fatiguing work of carefully turning back the muco-perichondrium on each side, a most tedious part of the process was clipping away the deviation in fragments. The plough shown by Dr. Paterson promised to curtail this period. As to local anæsthesia he would be only too pleased to persuade patients to accept it, but unfortunately he had found that many private patients under cocaine anæsthesia were disposed to faint during septum operations—not so much from the cocaine as from the mental impression produced.

Dr. STCLAIR THOMSON showed a *Case of Complete Submucous Resection of a Large Deviation of the Septum.*

The patient had been prevented from coming, but the specimen of the removed septum was shown. The right nostril in this case was entirely occluded. The deviation was found to be limited to the cartilaginous septum; there was no bony spur, and consequently the operation in this case was completed in a little over an hour.

Dr. STCLAIR THOMSON showed a *Case of Impaired Movement of the Right Vocal Cord, chiefly Adductor, in a Professional Singer aged Thirty-three.*

The patient only complained of "catarrh," but his teacher had hazarded the opinion that there was something wrong with the larynx. The speaking voice was high pitched, but clear. The larynx was normal and the cords were clear, but the right one was seen to be sluggish in both closing and opening. Both movements were present, but in adduction the cord never reached the middle line. It abducted slowly, and generally did not pass beyond the mid position, but when the patient was induced to heave a deep sigh it became completely abducted. In prolonged phonation the left arytenoid passed very slightly in front of the right one.

The patient had never had rheumatism, lues, or severe influenza. There was nothing to explain the condition in his nose, pharynx, neck, or chest. The reflexes were normal.

The patient thought he had had voice trouble all his life, as he always got easily tired, but he was certain that his singing voice was twice as big as it was ten years ago. He found that fatigue told on it more than anything.

Dr. HERBERT TILLEY said he had carefully examined the case, but was bound to confess he could find nothing abnormal in the patient's larynx. Both cords seemed to possess full power of adduction.

Sir FELIX SEMON said that he confessed he could not see any paresis of the right vocal cord.

Dr. FURNESS POTTER said that he had twice examined this case very carefully, and he failed to detect any impairment of mobility in the right cord. On phonation both cords appeared to him to come into perfect apposition.

Dr. STCLAIR THOMSON, in reply, said that though no one had risen to support his views, several members who had examined the patient agreed that there was a flagging of the right cord. He



had seen the patient many times, and at first he himself had failed to detect this difference, which accounted for the patient's occasional hoarseness and voice fatigue. It was slight, but he still held that there was a difference between the adduction of the cords. He did not for a moment suggest that this was due to any nerve lesion, but simply to some impairment with the mobility of the arytenoid joint.

MR. CRESSWELL BABER gave the *Sequel to a Case of Pemphigus of the Throat* (shown December 4, 1903).<sup>1</sup>

Mr. Baber said that, thanks to Mr. George C. Searle, of Brixham, into whose care the patient passed, he was able to give some details of the subsequent course of the case.

About the middle of January bullæ of various sizes broke out on the skin. They appeared first at the lower part of the abdomen, and afterwards covered the whole integument more or less except the face. When the bullæ burst they left sores like large burns. The throat affection, which at the onset of the pemphigus on the skin seemed to improve, subsequently progressed *pari passu* with the latter.

Arsenic was given in large doses, but appeared to do no good; the patient also had opium. He died of exhaustion on March 13, 1904. There was no eye affection.

SIR FELIX SEMON said he was the more interested in learning that his diagnosis of pemphigus had come true in this case, as, at the time, it had been received with some incredulity on account of the complete absence of manifestations of the disease on the skin. In his experience, however,—which, of course, was limited seeing the rarity of lesions of the mucous membrane in pemphigus—he had repeatedly found that the internal lesions preceded the cutaneous eruption. The end of Mr. Baber's patient, viz. exhaustion, was in keeping with his usual experience.

MR. CRESSWELL BABER thanked Sir Felix Semon for his opinion on the case, which had been borne out by subsequent history.

DR. KELSON showed a *Case of Laryngeal Ulceration and Arytenoid Swelling*.

A man, aged forty-eight, who had for six months suffered from hoarseness for the last six weeks had been almost aphonic and spitting up a large quantity of blood-stained mucus. No tubercle bacilli were found, and there had been no benefit from iodides.

On examination the right arytenoid was found to be swollen

<sup>1</sup> JOURNAL OF LARYNGOLOGY, RHINOLOGY AND OTOTOLOGY, vol. xix, p. 151.

and fixed, and there was a large ulcer involving the right ventricular band, ventricle, and cord.

MR. DE SANTI considered there was but little doubt that Dr. Kelson's patient was suffering from malignant disease of the larynx. In his opinion the ultimate outlook from an operative point of view was not good.

Dr. HERBERT TILLEY thought that the appearances strongly suggested malignant ulceration. The smell of the patient's breath also possessed that curious odour which was so frequently present when epithelial structures were breaking down.

Dr. KELSON concurred in the view that it was probably malignant disease.

Dr. KELSON showed a *Parotid Tumour removed from a Case shown at the Previous Meeting*.

The tumour on removal was found to be about the size of a bantam's egg, and, closely incorporated with the parotid gland, it consisted chiefly of cysts, fibrous tissue, and gland tissue resembling the parotid, and was very vascular.

Dr. BROWN KELLY showed *Instruments for Opening and Inspecting the Antrum of Highmore*.

The instruments are two trocars—one sharp, the other blunt-pointed—and several specula. The antrum is opened in the following manner: The tissues over the canine fossa are anæsthetised by the injection of cocaine. The lower part of the facial wall of the antrum is then exposed in the usual manner. The zygomatic-alveolar ridge, which descends from the malar process to the alveolar border above the first molar, and which is easily felt, is taken as landmark, and the sharp-pointed trocar is applied to the bony surface at a spot about 5 mm. in front of the ridge, and about the same distance above the gingivo-labial fold. A passage is now bored large enough to admit the end of the blunt-pointed trocar by means of which the full-sized opening is made. By completing the operation with a blunt-pointed instrument the danger of injuring the opposite wall is averted. The advantages of using large trocars are the ease, the rapidity, and the precision with which the opening can be made without, as a rule, any pain.

The specula resemble large elongated ear specula with bevelled ends. The last provision facilitates their introduction, gives a more extensive field of view, and allows of the freer manipulation of instruments in the antrum. An extra long speculum is

useful when the lining membrane is cedematous, and must be pushed aside in order to see the deeper parts of the cavity.

In the manner described the antral lining membrane, excepting on the facial wall, can be minutely inspected, as Dr. Kelly had proved in a large number of subjects. In the course of his examinations he had met with some interesting conditions including œdema, general thickening, polypi, and cysts of the lining membrane.

He had hoped at one time to be able to remedy diseased conditions of the antral lining membrane which did not yield to syringing by direct applications and so avoid the radical operation. A number of medicaments, of which chromic acid proved the most useful, were tried with that object in view, but while improvement was almost invariably obtained complete cures were exceptional.

It was, therefore, rather as an easy means of inspecting the antrum when it is desirable to know the state of its lining membrane that he desired to recommend the procedure.

Dr. PATERSON remarked that the procedure, while useful so far as it went, would scarcely permit an inspection of the interior of the antrum sufficiently complete to enable the condition of the pre-lachrymal recess to be examined. Disease often persisted at that point, and it escaped curetting on account of its narrow lumen.

Mr. CRESSWELL BABER said that for some time past, in performing the radical operation on the maxillary antrum, after the use of a small drill, he had employed a large conical drill, which he had had made, for rapidly making a free opening in the anterior wall. This instrument was also serviceable for making a large opening from the antral cavity into the nose.

Dr. SMURTHWAITE showed a *Specimen* (post-mortem) of *Large Mucous Polypus* in situ, apparently having caused complete absorption of *Septum and Turbinated Bones*.

Dr. Smurthwaite said he had found this specimen by chance when collecting bones of the nasal cavities from the dissecting-room. The polypus as exhibited was only two-thirds of its size when the specimen was first mounted. It then filled up the whole of the nasal cavity on the right side and also encroached into that of the left, the septum having practically disappeared. The turbinated bodies on the right side were also absent, and those on the left very much atrophied, showing indentation from pressure of the polypus. Whether the polypus had caused the absorption

of the septum or whether the absence of the latter was due to an earlier specific disease he was not prepared to state.

Dr. W. HILL considered that there was reasonable doubt as to the specimen being a mucous polypus. It seemed to him to partake more of a solid type of tumour.

Dr. SMURTHWAITE, in reply, said it was a mucous polypus, for when cut into mucous fluid partially flowed out.

Dr. SMURTHWAITE showed a *Microscopic Slide of Primary Tubercular Growth of Septum in a Female aged Thirty-five.*

The growth involved the anterior portion of the cartilaginous septum on the right side. The patient had suffered from nasal obstruction for about a year. The tumour was of very uneven surface, of bluish-white colour, and was readily removed by means of a Volkmann's spoon. The cartilage was scraped bare and lactic acid, 75 per cent., rubbed thoroughly over the surface, and now, three months after above treatment, there were no signs of return. As would be seen in the slide, the nature of the growth was undoubtedly tubercular, for though no bacilli were found, a number of giant-cells were seen to be present.

The PRESIDENT showed a *Thick-walled Cyst removed from the Left Nostril of a Patient (Male) aged Sixty-four.*

On inspection a real, globular mass was seen filling the nostril anteriorly. The growth looked and felt firmer than a polypus. The choana was seen to be quite free. An electric cautery snare was applied and half the mass was included. As the wire cut into the growth about two drachms of very bright mucoid material came away. On examination an empty sac was seen hanging from the anterior part of the middle meatus. This was removed in two pieces with the cautery snare.

Sir FELIX SEMON said that he had not so very rarely found in the anterior part of the nose distinctly cystic tumours, *i. e.* apparently ordinary polypi, on removal of which a good deal of sometimes thick and glairy, sometimes thin, fluid escaped; but he confessed he had never paid much attention to the occurrence, being under the belief that the ordinary œdematous fibromata occasionally contained cystic cavities.

Dr. PEGLER said he thought at first these interesting specimens might bear some analogy to his own case shown in February, 1901, but the resemblance was superficial only, and he should be more inclined to regard them as polypi undergoing cystic degeneration.



The President had entrusted them to him for sections to be made and reported on by the Morbid Growths Committee.

Dr. DONELAN showed a *Specimen of Tumour of Palate from a Woman aged Thirty-four* (shown at last meeting).

Dr. DONELAN said he had removed the tumour by incision and raspatory, and found that, as suggested by Mr. Stephen Paget, it had shelled out quite easily. He had not had an opportunity of having a slide prepared, but, as some discussion had taken place as to the probable nature of the growth, perhaps the Society would think well of submitting it to the Morbid Growths Committee.

Dr. DUNDAS GRANT showed a *Case of Papilloma of the Larynx in a Man aged Fifty-one, removed in great part by means of Dundas Grant's Intra-laryngeal Forceps*.

The growth was of the size of half a green pea, situated at the middle of the right vocal cord, white in colour, and slightly papillated on the surface; it appeared to rise both from the upper surface and the edge of the cord; there was no impairment of mobility. The patient stated that a growth in his larynx had been removed at the Central London Throat and Ear Hospital (he thinks by Dr. Grant) about twenty years ago; it returned some years later and was removed elsewhere, and his voice remained fairly satisfactory till four months ago. Dr. Grant had removed a considerable portion of it by means of his forceps; it was submitted to microscopical examination, and the structure was found to be fibro-papillomatous. The greater part of the remainder was removed in the same way, and it was proposed to treat any remnants that were not accessible to forceps by means of the galvano-cautery.

Dr. DUNDAS GRANT showed a *Case of a Nodule on the Right Vocal Cord in a Male Comic Vocalist, with Chronic Laryngitis; Nodule removed by means of Galvano-cautery, and Congestion treated by Scarification and Rest of Voice*.

There was no appearance of the nodule, and the right vocal cord on which it was situated was less congested than the opposite one. The scarification of the left cord had produced improvement in the voice, but the cord itself still remained thickened.

The patient, aged twenty-eight, complained of hoarseness of six months' duration; the cords were both swollen and red, and there was a nodule of about the size of a pin's head on the right vocal

cord at the junction of the anterior and middle thirds. He had practised comic singing habitually, without having had any training in music or voice production, and had a history of specific infection five years previously. He was ordered in the first instance to rest his voice, give up smoking, and to take a mixture of biniodide of mercury, but at the end of a week this had not caused the slightest improvement. The nodule on the right cord was then touched with the galvano-cautery, and the left cord was scarified by means of Herings' knife; when seen again five days later the nodule had disappeared; the scarifications were repeated, and the voice was greatly improved.

Dr. DUNDAS GRANT showed a *Case of Paralysis of the Right Half of the Palate, of the Right Vocal Cord, and the Right Half of the Pharynx in a Girl aged Twenty.*

During phonation the left posterior pillar approached the middle line, as also did the lateral band; the right half of the pharynx appeared to be drawn to the right; in reality it was probably pushed in that direction by the muscles of the opposite side. The patient complained of choking, hawking, and discomfort in her throat of five weeks' duration, attributed to a "cold." The knee-jerks were active—almost exaggerated. There was no evidence of disease at the right apex of the lung, and presumably it was a lesion high up in the trunk or nucleus of the vagus.

The exhibitor was desirous of having the opinions of the members.

Dr. HERBERT TILLEY thought it would be well if Dr. Grant would have the patient examined by an expert neurologist, who might be able to give the Society definite information as to the site and nature of the lesion. He reminded the Society of a case, which he had shown there, presenting somewhat similar lesions, in addition to others which indicated syringomyelia.

Dr. DUNDAS GRANT asked specially for opinions with regard to the singular movements of the pharynx, inasmuch as the right half appeared to be vigorously contracting while in reality paralysed. He had not previously seen this feature so pronounced. In reply to Dr. Tilley he thought the onset was too acute for it to be dependent on syringomyelia, and he hazarded a diagnosis of acute poliomyelitis of the bulb affecting the vago-accessory nucleus.

Sir FELIX SEMON showed a *Case of Obscure Ulceration of the Left Vocal Cord of nearly a Year and a Half's Standing in a Gentleman aged about Sixty* (the patient was shown at the

December Meeting, 1903),<sup>1</sup> which had since spontaneously disappeared.

The case was shown as an extremely obscure one at the December meeting, 1903, when a full description was given, and when the discussion, in which Mr. Charters Symonds, Dr. Scanes Spicer, Dr. Herbert Tilley, Dr. Beale, and Dr. Law took part, revealed considerable differences of opinion. Since then the patient, after an attack of influenza, was extremely ill, and for a considerable time his life was despaired of. He was seen again after an interval of several months at the beginning of May, when it was found that the chronic and troublesome ulceration, which had existed for so long a time, had spontaneously and completely disappeared, and that at present there was only slight congestion and relaxation of the left vocal cord. This pleasing fact, of course, rendered the question as to the nature of this chronic ulceration more obscure than ever.

Sir FELIX SEMON showed a *Specimen of a Case of Papilliferous Columnar-celled Carcinoma of the Nose in a Young Man aged Twenty-four*.

The patient was sent to Sir FELIX SEMON by Mr. J. C. Craig, F.R.C.S., of Belfast, on March 2, 1904, with the following history:

About ten months ago the patient had a single and fairly profuse attack of epistaxis from the left nostril. In September of that year he began to suffer from watery discharge from the left nostril, which steadily got worse and became rather offensive. Mr. Craig saw him first in November, 1903, when he found the whole region of the middle meatus on the left side occupied by a grey cauliflower-like growth, which came away without effort in the snare, and without hæmorrhage. The discharge from the nose was, at that time, very offensive, but scarcely at all coloured. A portion of the growth was examined by a pathologist, with the result that certain tendencies to malignancy were admitted, but without the disease being called cancerous. Mr. Craig, by December 13, had removed nearly all the growth intra-nasally, and found that it was apparently springing from the septum high up underneath the cribriform plate. After thorough removal of the growth its base was freely curetted and 50 per cent. of lactic acid solution firmly rubbed into the remaining surface. On December 21 the growth was apparently quite removed. On January 5 another application of the curette brought away a few minute threads of

<sup>1</sup> JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, vol. xix, p. 100.

granulation tissue. On February 4 there was some suspicion of recurrence. Mr. Craig curetted freely, and submitted two of the scrapings to a pathologist, who pronounced one of them to be purely granulation tissue, whilst the other showed the same structures as the original growth. Another specimen was at the same time examined by the pathologist to University College Hospital, and pronounced carcinomatous. In these circumstances Mr. Craig wished the patient to have a further opinion.

Sir FELIX SEMON said that on March 2, when he examined him first, he only saw, high up on the septum on the left side, a granulating surface with rather-irregular ragged walls. The bottom of this surface looked partly greyish, partly suffused with blood. There was, however, no definite evidence of a new growth. Seeing that the patient had been curetted only a few days previously hardly any other condition of things could be expected. Posterior rhinoscopy showed no abnormal conditions, and there was no enlargement of glands anywhere in the neck or under the chin.

When he saw the patient a week later (March 9), he found a distinct recurrence of the growth in its upper parts, a warty, reddish, mammillated mass having grown up since he examined the patient a week previously. Meanwhile Mr. Shattock had examined the specimens of the original growth, sent from Belfast, and pronounced the growth without hesitation to be a papilliferous columnar-celled carcinoma. In these circumstances there could be no doubt that the patient ought to be without delay subjected to a radical operation from within, and the patient and his family having consented, Sir Victor Horsley performed a very radical operation on March 14. He first ligatured the external carotid, then, after plugging the naso-pharyngeal cavity, did a Rouge's operation, and removed the greater part of the bony septum, the left middle turbinate, and the ethmoid on the left side up to the cribriform plate. The operation lasted nearly two hours, but so far as could be judged succeeded in completely removing the growth with a healthy area round it. The patient made an uninterrupted recovery, and left about three weeks afterwards for Belfast. So far, according to information received, there had been no recurrence.

The case was put on record (1) on account of the general rarity of malignant disease in the nose; (2) because this particular form of cancer (papilliferous columnar-celled carcinoma) was very rarely indeed found in the nose; and (3) on account of the uncommonly young age of the patient (24).



Sir FELIX SEMON gave the *Further History (with Drawing) of the Patient suffering from Obscure Ulceration of the Left Tonsil, twice shown* (at the November Meeting, 1902,<sup>1</sup> and the January Meeting, 1903).

Sir Felix Semon said it would be remembered that this patient, a clergyman, aged about seventy, was shown at the November meeting, 1902, when there was ulceration of the left tonsil, with acute and considerable enlargement of numerous cervical lymphatic glands on both sides. The question was whether the disease was malignant. Mr. Shattock at that time considered the disease as inflammatory, whilst according to clinical observation its nature was doubtful. In the discussion Mr. de Santi expressed a very decided opinion to the effect that in spite of Mr. Shattock's opinion the affection was of a malignant nature.

When shown two months afterwards at the January meeting, 1903, the ulceration of the left tonsil had quite disappeared, and the tonsil had become much smaller, whilst the enlargement of the cervical lymphatic glands on both sides of the neck had also considerably diminished. In all probability a septic infection had been at work.

After the last demonstration, according to the description given by Dr. Bolton Tomson, the throat became perfectly normal, and remained so for six weeks or more. He then got an acute inflammation of the right side, very similar in character to the initial inflammation, with which his former trouble commenced, viz. a peritonsillitis (the tonsil itself being but little affected), some glandular swelling, but no ulceration. With oxygen, a spray of chinolol, belladonna to the glands, and iodide of potassium internally, this subsided, but never quite disappeared. All pain and inconvenience ceased, but a swelling about as big as a split pea remained at the upper part of the right anterior pillar, making it bulge forward.

About May, 1903, acute inflammation with tendency to œdema appeared again in the right side, and on June 11, when Sir Felix Semon saw the patient again, he was fully convinced that the affection was of a septic character; there was follicular tonsillitis in the right tonsil from which a zone of œdematous infiltration affecting particularly the uvula had started. The uvula itself was considerably enlarged, congested, and semi-transparent, and on the anterior right arch of the palate there was a similar condition.

<sup>1</sup> JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, vol. xviii, p. 39; and vol. xviii, p. 212.

There was no extension into the naso-pharyngeal or into the laryngeal region.

The drainage of the patient's house having been repeatedly examined by experts and found perfectly normal, the patient was warned not to visit septic cases in his district. Quinine internally, oxygen inhalations, cold water applications round the neck, bland nutritious diet, and plenty of fresh air, together with applications of peroxide of hydrogen and solution of sulphate of zinc were ordered.

In October, 1903, Sir Felix Semon saw the patient again. He then had a considerably enlarged gland in his left groin, near which there were several smaller ones. Fears that the process in spite of the previous negative evidence of the microscopist might be of a sarcomatous or possibly lympho-sarcomatous character were revived, and arsenic was given in gradually increasing doses.

On December 13 Dr. Bolton Tomson wrote that, after first improving under the arsenic, he got a cold, that his temperature went up to  $101^{\circ}$ , that his throat got much worse, that he had acute and most exhausting diarrhoea, violent abdominal pains, and flatulent distension, that the glands in his groin doubled in size, that his throat was much more inflamed on the right side, and covered with "a membrane like one of the mimic diphtheria membranes that one examines to make sure, but knows full well it is not diphtheria," that the glands on the right side of the neck were also slightly enlarged, but not very much. The membranous condition was followed by an ulcerative process, which again improved, and Dr. Tomson thought that the throat was going to get quite well, but about twelve days afterwards the patient caught another cold, and again the throat flared up, getting since then steadily worse. At the date of the letter the condition was as follows: "The area affected is confined entirely to the right tonsil and immediate neighbourhood. On examination one sees a large pocket between the anterior and posterior pillar of the fauces, always filled with saliva and muco-purulent discharge. On syringing this out a small piece of tonsil is seen, irregular, and with a greyish appearance. This covers the anterior aspect of the posterior pillar, and the front of the anterior pillar for a sharply-defined crescentic area of a quarter of an inch. Outside this there is a zone of redness also sharply defined, which takes in the adjacent half of the uvula and salpingo-pharyngeal fold." The patient at that time suffered a good deal from sharp lancinating pains when he used his jaw in eating and talking, and could not sleep at a stretch, as saliva or discharge constantly accumulated in the pocket in his right tonsil,

and had to be washed out. His temperature was about 98.4° in the morning and about 100° at night. The blood was examined with perfectly negative results.

On January 10 Dr. Tomson wrote as follows: "You asked me to write you as to Mr. H—'s progress. I enclose an illustration taken about a week ago. At the upper half of the right anterior pillar you will see the remains of the pseudo-membrane I described in my last letter. Outside this is a sharply-defined zone of redness terminating in some ulceration at the base of the uvula. The disease has destroyed the whole of the soft tissue in the tonsillar fossa, fat, connective tissue, sheath of muscle. The external margin of the posterior pillar is well defined. The colouring is intended to indicate the excavation that had occurred. A small piece of tonsil that is left is seen projecting out from the cavity. The whole space around the bit of tonsil was filled with slough which has completely cleared. I gave morphia in addition to the other remedies as you suggested, and with great benefit. The more useful antiseptics I found to be frequent irrigation with weak carbolic before and after food, and keeping the surfaces covered with iodoform in the intervals. I have had to contend against a severe chronic enteritis at the same time, as you know, and although both diseases appear to be arrested, the patient is dying simply from failing strength and natural decay. (He is seventy-four.) Every organ seems to be ceasing to functionate."

In reply to this Sir Felix Semon at once wrote to Dr. Tomson, begging him to insist when the end came on making a *post-mortem* examination. Unfortunately, however, the patient died on the same day when Dr. Tomson's letter was sent, and when Dr. Tomson went to see whether a *post-mortem* examination could be obtained he found that the body had already been taken to the church, and that the performance of a *post-mortem* examination was out of the question.

Thus, in this most interesting and obscure case again, as in many others, we have been deprived by the impossibility of getting an autopsy of the only chance of ultimately finding out what was the cause of the most unusual and varying disease from which the patient suffered. Sir Felix Semon said he would be glad to hear the opinions of the Society as to the nature of the disease, after this further report, which he had curtailed as much as possible in order not to encroach too much upon the time of the Society. The differential diagnosis would of course seem to lie between a chronic septicæmia with occasional exacerbations, and a new growth of the nature of lympho-sarcoma. It deserved

to be mentioned expressly that the left tonsil, which was the original seat of the disease when the patient was shown in November, 1902, remained free from disease after having healed, until the end of the patient's life.

Sir FELIX SEMON reported the *Removal of the Uncommon Laryngeal Tumour* (described in the *Proceedings* of the Society on March 9, 1898).<sup>1</sup>

The tumour, which was found to exist in 1888 by Dr. Major, of Montreal, in the larynx and neck of a lady, aged at that time thirty, and which has been fully described in the Society's *Proceedings* gave no rise to discomfort until recently, and the patient, who, in spite of having worn a tracheotomy tube for twelve years, felt perfectly comfortable, refused further operative interference. Quite recently, however, symptoms pointing to irritation of the sympathetic, such as very troublesome salivation and epiphora, made their appearance, the internal tumour was found to have considerably increased in size since Sir Felix Semon last saw the patient about two years ago, and she at last consented to operation. Meanwhile he had read in Professor Paul von Bruns' chapter on "Malformations, Injuries, and Diseases of the Larynx and Trachea" in the *Handbuch der Praktischen Chirurgie* (pp. 104 and 105), a case apparently quite analogous to this one, and described by him as a "unicum." In this case Professor von Bruns cut down upon the external tumour, dissected it out from its vicinity, followed a thin filiform pedicle, which extended from the external tumour underneath the lower edge of the thyroid cartilage into the interior of the larynx, where it expanded in a manner quite similar to his own case, and succeeded in shelling it out without opening the interior of the larynx at all. Sir Felix Semon said he followed exactly the same plan with exactly the same result, except that the tumour, being very friable, broke during its removal into three parts, which were removed without difficulty. In this case, which consisted of a number of tough yellow lobes and lobules, and, in its entirety, is as big as a medium-sized plum, the tumour entered the larynx not below but above the thyroid cartilage, between it and the hyoid bone. The operation was performed with the assistance of Mr. Stabb, Mr. Tyrrell giving the chloroform, and in the presence of Dr. McBride, Dr. Law, and Mr. Waggett. The mucous membrane forming the internal lateral wall of the big cavity, which remained behind after removal of the tumour, was stitched to the adjoining

<sup>1</sup> JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY, vol. xiii, p. 293.



tissues, as, during inspiration, it was strongly drawn inwards, and as it was feared that it might thus cause fresh obstruction. The wound was then closed in its entire length, only a small drainage-tube being left in its deepest part. After completion of this operation the tracheotomy tube, which the patient had worn so many years, was removed; the wall of the tracheal opening, which was lined with skin for a considerable distance inwards, was pared off entirely to a circular incision round the tracheal opening, and subsequently dissected, the funnel thereby resulting being temporarily closed by clamp forceps. Finally, preliminary horsehair ligatures were passed through the openings of the fresh wound, but not closed. The clamp forceps were left in to ensure in the event of dyspnœa arising the re-introduction of the cannulas. Should, as may be justly hoped, no difficulty occur, the forceps would be removed on the morning following the operation, and the wound closed in its entirety.

The case being the second on record in the whole laryngological literature, a full description will be given when the healing has been completed, and the tumour has been microscopically examined.

Dr. D. R. PATERSON reported the *Removal of a Foreign Body from the Trachea by Direct Laryngo-tracheoscopy*.

A girl, aged eight, came to the out-patient department with the laryngeal obstruction of a week's duration. She was not hoarse, and with the laryngeal mirror a glimpse was obtained of a body situated a short distance below the glottis. The difficulty in breathing was said to have come on after teeth extraction, and a radiograph strongly suggested a broken tooth as the cause. After admission the breathing suddenly became worse, and it was ascertained that the foreign body had become displaced somewhat downwards. The dyspnœa being very urgent, a low tracheotomy was done. The pharynx and larynx having been cocaineised, an excellent view was obtained of the body through Killian's tracheoscope, and it was extracted by means of a crocodile forceps, when it proved to be a stay eyelet covered with a calcareous incrustation. A short reference was made to a case of laryngeal papillomata in a child where direct laryngoscopy afforded a good view of the larynx and the growths were easily removed.

Mr. CRESSWELL BABER inquired as to what position the patient was examined in, and what source of illumination was employed.

In reply to Mr. Cresswell Baber, Dr. PATERSON said he used a Kirstein-Killian electric lamp, with the patient placed on the back and the head hanging over the table.

MR. STEPHEN PAGET showed a *Case of Laryngeal Disease for Diagnosis*.

The patient was a nurse, who since Christmas, 1903, had suffered from partial loss of voice. No pain, no dysphagia, no cough, no signs of phthisis. The interarytænoid space was partly obstructed by a marked thickening of the mucous membrane, which had a coarse and furrowed surface, but was not granular or ulcerated. The cords were slightly and irregularly congested. The rest of the larynx appeared to be healthy. Mr. Paget raised the question whether, in the absence of physical signs in the chest, the case ought to be regarded as one of early tubercular laryngitis.

Dr. HERBERT TILLEY thought it must be within the experience of many present that these interarytænoid swellings often occurred in patients in whom there was no sign or suspicion of tubercle. This interarytænoid swelling was a localised form of chronic laryngitis, and due to a hyperplasia of epithelial and subepithelial tissues. When it was present signs of chronic laryngitis were often present in other parts of the larynx, and in Mr. Paget's case it would be noticed that both cords were congested and thickened. The thickening referred to seemed to arise from different causes. He (the speaker) had frequently observed it in chronic alcoholics and gouty individuals, and details were given of a case shown before the Society in which the interarytænoid swelling was so great that urgent dyspnoea was produced, and the patient was admitted to the hospital for laryngotomy, but the urgent symptoms disappeared with rest, purgation, and a low diet. A week afterwards the patient died suddenly, and at the *post-mortem* examination well-marked cirrhosis of the liver was found. Microscopic examination of the larynx showed the interarytænoid swelling to be a hyperplasia of the natural tissues in the situation—possibly merely a local evidence of a general fibrosis. In yet other cases nasal and naso-pharyngeal affections, especially when these gave rise to septic discharges, would produce a similar affection of the larynx. The treatment, in addition to dealing with these factors by constitutional and local (nasal and naso-pharyngeal) measures, should consist in the application of solid nitrate of silver to the swelling after having anæsthetised it with 20 per cent. cocaine solution. In some cases preliminary curetting seemed to ensure the caustic having a more rapid and permanent effect.

Mr. WAGGETT drew special attention to the frequent presence of nasal stenosis in these cases, and to the improvement in the laryngeal condition after removal of such stenosis.

Dr. SMURTHWAITE thought the interarytænoid appearance indicated tuberculosis, though he could instance a case similar to the one mentioned by Dr. Tilley. The patient was brought into the Royal Infirmary, Newcastle-on-Tyne, late one night suffering from an acute laryngeal stenosis which had come on suddenly a few hours previous to his admission. Tracheotomy was contemplated, but the man's condition improving as the night went on, the operation was not resorted to. On a thorough examination of the larynx being made in the morning a marked thickening of the lining membrane of the interarytænoid space was made out, the left cord was diffusely thickened, and a condition of pachydermia verrucosa, so called by Virchow, was present. The man was a heavy drinker. He recovered from his acute symptoms, and left the hospital with only slight huskiness of voice, though the pachydermia more or less persisted now, a year later.

In reply, Mr. STEPHEN PAGET said that he would go into the case carefully, and would show the patient again at a later meeting of the Society.

Mr. DE SANTI showed *A Woman aged Sixty-three with Swelling of both Arytenoids and Infiltration of the Epiglottis.*

The patient was a single woman aged 63. Her history was that she had had hoarseness, dysphagia, loss of flesh, and pain in the right ear for about two weeks; she had no cough and no difficulty in breathing. There was no history or evidence of syphilis. Examination of the larynx revealed considerable swelling of both arytenoid regions, and ulceration of the right arytenoid region. Also infiltration of the epiglottis, especially on the right side.

The case looked more of a tubercular nature than anything else, and was brought forward for diagnosis. No examination of the lungs or sputum had been made.

Dr. DE HAVILLAND HALL showed the *Skiagram of a Case of Paralysis of the Left Vocal Cord in a Man aged Sixty-seven*, shown by Mr. de Santi on May 6.<sup>1</sup>

The skiagram seemed to show dilatation of the transverse and descending arch of the aorta. The patient died a few days after this was taken. At the necropsy the aorta was found healthy. At the level of the bifurcation of the trachea there was malignant disease of the œsophagus, and the growth had ulcerated into the trachea. The pneumogastric and recurrent nerves on the left side were involved in the growth.

<sup>1</sup> JOURNAL OF LARYNGOLOGY, RHINOLOGY AND OTOTOLOGY, vol. xix, p. 331.

## BRITISH MEDICAL ASSOCIATION.

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SEVENTY-SECOND ANNUAL MEETING, OXFORD, JULY 26, 27, 28,  
AND 29, 1904.

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*Section of Laryngology and Otology.*

*President*: Charters James Symonds, M.S. (London). *Vice-Presidents*: Frank Marsh, F.R.C.S. (Birmingham); Cecil Edward Shaw, M.D. (Belfast); Harry Lambert Lack, M.D. (London). *Honorary Secretaries*: Walter Jobson Horne, M.D. (London); Edmund Cecil Bevers, M.B. (Oxford).

The Meeting of the British Medical Association will take place this year at Oxford from July 26 to July 29 inclusive. The Section of Laryngology and Otology will be held under the presidency of Mr. Charters Symonds.

Foreign and Colonial visitors will be cordially welcomed in the Section, and such as may desire to attend are requested to send in their names as soon as possible to the Honorary Secretaries, together with the titles of any papers they may wish to read.

The Section will meet on Wednesday, Thursday, and Friday, July 27, 28, and 29, at 10 a.m., adjourning at 1 p.m. each day.

The following subjects have been selected for special discussion:—

1. Wednesday, July 27.—“The Treatment of Non-Suppurative Disease of the Middle Ear.”
2. Thursday, July 28.—“The Ætiology, Treatment, and Prognosis of Innocent Growths of the Larynx.”
3. Friday, July 29.—“Intranasal Disease as a Determining Factor in the Production of Laryngeal and Pulmonary Affections (Spasmodic and Catarrhal).”

Through the courtesy of the Editor of the *British Medical Journal* we are able to afford our readers the opportunity of studying the following abstracts of introductory papers.

## THE TREATMENT OF NON-SUPPURATIVE DISEASE OF THE MIDDLE EAR.

The discussion will be introduced by Professor Urban Pritchard (London) and Dr. Thomas Barr (Glasgow).

Abstract of introductory paper by Professor URBAN PRITCHARD.

The classification of the conditions included under non-suppurative disease of the middle ear is not yet agreed upon, but for discussion of treatment the following rough divisions will suffice:

1. Acute non-suppurative otitis media.
2. Early stages of chronic non-suppurative catarrh.



3. Advanced stages of the same.

4. Middle-ear adhesions, the result of former acute inflammation.

5. Sclerosis resulting from disease of the bony capsule enclosing the internal ear and forming the inner wall of the tympanic cavity.

1. *Treatment of acute non-suppurative otitis media.*—In the earliest stages gentle, not forcible, Politzerisation (not catheterisation) will often relieve the pain at once and tend to cut short the attack. Counter-irritation behind the ear is always most valuable, and will often arrest the otitis and relieve the pain. Instillations are occasionally advisable; when used should be strong anodyne solutions (for example, cocaine or morphine) in an antiseptic medium. Glycerine of carbolic acid has been strongly recommended; also adrenalin with cocaine.

Heat in the form of very hot fomentations or hot bran-bags is very useful. Leeches in front and below the ear are valuable in very acute cases.

Incision of the membrane is called for when there is marked bulging of the membrane. The meatus must be purified and afterwards dressed antiseptically to avoid suppuration.

Purgatives are nearly always necessary. Phenacetin or antipyrin, etc., may be given to relieve the pain. Pharyngeal treatment is usually required, but nasal douches or irrigations must absolutely be avoided.

After-treatment.—Poltzerisation should always be employed; it will restore the hearing and prevent adhesions. If adenoids are present they must be removed.

2. *Treatment of the early stages of chronic non-suppurative catarrh*, in which there is exudation into the mucous membrane and from its surface; hence stenosis of the Eustachian tube and more or less fluid in the tympanic cavity.

Poltzerisation is preferable to catheterisation. This should be repeated at intervals of one, two, or three days, according to the relief obtained as ascertained by the amount of improvement to hearing. This must not be continued when it increases the deafness.

Incision of the membrana tympani may be practised if there is much fluid in the tympanic cavity, but this is practically a rare condition. The operation should be performed antiseptically.

Local medicinal treatment is most valuable. Sterile alkaline nasal irrigation (for example, borax and sodium bicarbonate) is to be preferred to the nasal douche, as the latter occasionally will produce acute otitis. Mild astringent sprays are often beneficial. Inhalations of pine oil, eucalyptus oil, or still better, of fumes of ammonium chloride, are most valuable.

Adenoids and also enlarged tonsils, if present, must be operated on, and any nasal stenosis must also be removed, to allow of free nasal breathing.

Internal medicinal treatment is rarely needed except for general health.

Climatic treatment is important. Damp situations, such as river valleys of gravel with clay subsoil, should be avoided. High, dry, and sunny positions selected. Warm and well-drained seaside resorts are good, whereas cold, damp seashores with northern aspects must be avoided. High sunny Alpine valleys are often very beneficial, but on rapidly descending from these Valsalva's inflation should be practised. Early and continued treatment of these stages of catarrh is most important, and will often prevent the advanced stages.

3. *Treatment of advanced stages of chronic middle-ear catarrh.*—This is much less satisfactory, on account of the adhesions causing retraction of the membrane and fixation of the membrane and ossicles.

**Mechanical.**—Catheterisation is often preferable to Politzerisation, but the value of courses of repeated inflations has been much overrated. Patients must be warned against the constant recourse to Valsalva's method of inflation; at the same time, cautiously employed, it is of value. Gentle suction by means of Delstanche's masseur is occasionally of value, but may easily be overdone. We have yet to learn the value of the rapid suction massage recently introduced. The Eustachian bougie has been overrated. The objections to its use are: First, the risk of injury to the delicate ciliated mucous membrane; the narrow part of the tube being bony, it cannot be dilated except at the expense of this mucous membrane. Secondly, in advanced cases the loss of hearing power is almost always due to changes in the tympanic cavity, and not in the Eustachian tube.

**Operations.**—All these up to the present have been futile.

**Local medicinal treatment.**—Nasal irrigations of sterile alkaline and saline solutions are of much value. Inhalations of the ammonium chloride fumes, with cautious Valsalva's inflation to introduce them through the Eustachian tubes, form a most valuable treatment; but long-continued use, with intervals of rest, is necessary. Injections through the Eustachian catheter are much employed by some surgeons, and are occasionally of value; probably a sterile solution of sodium bicarbonate is the most efficacious.

**Internal medicinal treatment.**—Occasionally, when the mucous membrane is glazed and dry, small doses of potassium iodide with ammonia, so as to produce slight symptoms of coryza, combined with some form of inflation, will yield excellent results. Turkish baths are of value in some of the less advanced cases.

**Climate.**—The same holds good as with the early stages of the disease, but has far less effect.

4. *The treatment of middle-ear adhesions of old standing.*—This is most unsatisfactory. Operative interference has as yet signally failed, though there may be a future for it. In fact, at present these cases only make the surgeon regret that active treatment was not adopted directly after the acute inflammation which resulted in the adhesions.

5. *Treatment of sclerosis.*—This is still more hopeless, and in a pure case no treatment is of any avail—mechanical, medicinal, operative, and climatic treatments are alike useless. All that we can do is to use such general treatment—for example, iron, arsenic, etc.—as will keep up the general health in the hope that this may help to arrest the disease. We have yet to learn whether the high-frequency electric treatment will yield any results.

In conclusion, although very much may be done in acute otitis and in the early stages of chronic catarrh, yet in the advanced stages of chronic catarrh the aural surgeon can do very little. This is very much to be deplored, as these cases are so very common.

Some of us are too apt to give up the advanced cases at once, as quite hopeless, forgetting the fact that even a small improvement in hearing is of value to a very deaf patient. Whereas others, being over-enthusiastic, vaunt the value of this or that treatment, which seems to have benefited, perhaps temporarily, one or two cases.

The writer knows of no condition in which treatment should be considered more judiciously, avoiding hasty conclusions for or against any proposed treatment; and considers that we ought certainly not to judge harshly of our over-enthusiastic *confrères* who may be unduly vaunting some new process, having been carried away by a few apparent successes.

## Abstract of Introductory Paper by Dr. THOMAS BARR (Glasgow).

Dr. BARR, in introducing the discussion, will not attempt to traverse the whole field included in the title, but limit himself to the non-exudative or dry forms of the disease, whatever their origin may have been. These are the cases for which otologists eagerly and earnestly desire improved methods of treatment, and are therefore well fitted for investigation and discussion. The problem to be dealt with here is more difficult than in the exudative forms. There are usually changes and products in the middle ear which may have originated long before, sometimes during early childhood, in acute inflammation, in simple exudative catarrh, or worst of all, in gradual, and scarcely perceptible, changes of a dry nature from the beginning. The scientific character of the treatment is faulty because of the deficiency of our knowledge of the anatomical changes existing in any given tympanum, and efforts of treatment are on that account bound to be often empirical and to some extent experimental.

The field of treatment is large, but not proportionately fruitful. It is manipulative, operative, medicinal, hygienic, and climatic. Amidst the diversity of opinion regarding the value of the different methods, *inflation* in some form or another, but especially in the form of *Politzerisation*, is probably practised by all otologists. In view of the fact that it is rarely possible to determine the precise condition of the intra-tympanic structures in any given case, we are not often justified in excluding the possibility of doing good until the test of treatment, *especially the test of effective inflation*, has been applied. As to how far experimental treatment may be pushed there is room for difference of opinion. Any increase in the deafness or in the intensity of the subjective sounds calls for an immediate halt, whereas improvement, even although comparatively slight but of course more so if marked, would encourage the continuance of these efforts. Inflation should not be practised too frequently, seldom more so than every second or third day; too prolonged treatment is bad. After three or four weeks there should be a pause of one, two, or three months, and in some cases short courses of such treatment may be required at intervals during the whole course of the person's life.

Patients or friends can usually be taught to inflate efficiently, but then definite directions as to the frequency and duration of the treatment should be given, with the warning that if any increase in the deafness or subjective sounds be observed, the fact should be immediately reported.

*Valsalva's method of inflation* is rarely permissible, because the patient is either unable to inflate his tympanum, or he does great mischief by unduly frequent repetition, so that it is not uncommon to find that a patient repeats it before every interview, it may be twenty or thirty times a day, acquiring such dexterity that the act is scarcely perceived by an onlooker. The improvement in hearing becomes less and less, and shorter and shorter, with gradually increasing mischief to the function of the organ. Efforts to force vapours through the Eustachian tubes into the tympanum are generally futile.

Probably the best results are obtained by the sudden impact of air yielded by Politzer's method, and *catheterization* is limited to the cases in which the introduction of solutions or vapours into the middle ear is indicated, or where a stricture exists in the Eustachian tube. Applications to the inside of the tube itself through the medium of the catheter are productive of good. Paroleine solutions of iodine, menthol, camphor, cocaine and adrenaline may be introduced through the catheter with good effect, by means of an atomizer, in catarrhal swelling of the



Eustachian tube. The treatment of organic stricture of the Eustachian tube is very unsatisfactory, and the attempt to forcibly dilate such a stricture by means of some kind of bougie seldom leads to a good result. Hence the writer has for several years past rarely employed the Eustachian bougie.

In regard to the *value of nasal treatment* there is divergence of opinion. Probably most otologists would approve of operating upon the naso-pharynx when post-nasal adenoids exist, without, however, expecting such brilliant results as in the case of the exudative catarrhs. There can be no doubt that nasal obstructions, especially when severe, tend to exercise an injurious influence upon the tympano-Eustachian apparatus. There is a good deal of agreement as to the propriety of operative or other treatment when there are hypertrophic changes in the nasal passages. The existence of a small spur or knot on the septum, interfering very little or not at all with nasal breathing, and producing no special tendency to catarrhal attacks, should probably be ignored. There are cases in which intra-nasal operations have seemed to aggravate deafness, perhaps through nervous shock or from the entrance of blood into the Eustachian tube, while the nasal douche may in the absence of careful precautions be productive of much harm.

The so-called *pneumatic massage of the tympanum*, along with inflation, is useful. The writer uses a suitable piston and cylinder propelled by an electro-motor, the electric current being derived from an accumulator. This is capable of producing up to 800 rarefactions and condensations in a minute without any unpleasantness to the patient, who frequently expresses a distinct feeling of relief and clearness after from one to two minutes of its use. It is always employed along with inflation and is a useful addition to the treatment by inflation. Even in sclerosis it frequently allays tinnitus.

Many patients find that rubbing behind the ear gives them a sense of benefit, and the *use of friction* with the aid of a stimulating ointment, such as camphor, oil of peppermint, and vaseline, applied behind and below the ear, in the form of a kind of massage, seems often to be productive of good.

In regard to the *value of operative treatment* on the tympanic membrane and intra-tympanic structures there is remarkable diversity of opinion, as shown by the result of the valuable investigation carried out by Mr. Arthur H. Cheate seven years ago, and reported in the *Practitioner* in 1897. It may be said in the first place that, with a narrow meatus, many of such operations are well-nigh impossible, while, in the absence of an exact knowledge of the pathological conditions present in the tympanum the operator is in the position of one groping in the dark. An artificial perforation with the galvanic cautery may improve the hearing or relieve tinnitus. If such an opening could be rendered permanent there is here distinct possibility of doing good. In proceeding to the other and deeper operative measures there is great danger of injuring rather than improving the hearing, and by producing a purulent condition we may even imperil life. The experience of most observers is that while improvement in the hearing or relief of the tinnitus not infrequently follows operation, such improvement is rarely permanent. To what extent opinion may be modified by improvements in the methods of operating, or in the means of determining the exact pathological conditions present, the near future will probably show.

*Electrical treatment*, long in abeyance in aural therapeutics, has been again revived in the form of the *high frequency currents*. In Glasgow this method has been under trial during the past year, when from



forty to fifty cases have been treated. In each of the cases the patient received from twenty to forty applications, continuing a quarter of an hour each time, and at intervals of from four to six times a week. It is employed in two ways: first, the multiple point electrode is held as near to the patient as possible without producing sparks, and at the same time another electrode in the shape of a white metal disc is pressed on the other side of the head; second, by means of thin metal rods covered with glass tubes which are closed at the distal ends and introduced into the external meatus. The results have been sufficiently encouraging to justify further trial, although no doubt the treatment is entirely empirical.

The discussion will be continued by Dr. A. Bronner, Dr. E. Deanesley, Mr. Mark Hovell, Dr. Macnaughton-Jones, Mr. R. Lake, Dr. J. Kerr Love, Mr. F. Marsh, Dr. W. Milligan, Dr. H. Pegler, Dr. H. Smurthwaite, Dr. Seanes Spicer, Dr. Herbert Tilley, Dr. Ernest Waggett, Dr. Watson Williams.

#### ETIOLOGY, TREATMENT, AND PROGNOSIS OF INNOCENT GROWTHS OF THE LARYNX.

The discussion will be introduced by Dr. Dundas Grant (London) and Professor A. Rosenberg (Berlin).

Abstract of introductory paper by Dr. DUNDAS GRANT.

Consideration will be limited to non-malignant growths found in the interior of the larynx, and chiefly to those points which are of practical importance with regard to treatment. This *etiology* is a question of practical weight, and it is only to be regretted that it is often veiled in obscurity. The removal of the cause is an essential step in treatment in medicine, and to a less extent in surgery; in the particular branch of laryngology under discussion it is obviously of secondary importance as compared with the operative removal or destruction of the growth, but it is of the greatest value in prophylaxis and in the prevention of recurrence after extirpation.

Many growths in the larynx are so closely related to inflammatory products that they cannot be distinguished from them, and, indeed, are identical with them in their anatomical structure. Their diversity depends mainly upon which elements in the composite structure of the laryngeal mucous membrane are chiefly affected.

Among the commonest growths in the larynx we find papillomata (pachydermia verrucosa) essentially identical with the pachydermia found in its most typical form on the vocal processes and in the inter-arytenoid space. Such growths as fibromata, fibro-papillomata, fibro-adenomata, cysts, and angiomas, are also explicable as the results of inflammatory conditions. In many cases the sequence of events from an acute to a chronic inflammation, with such subsequent hyperplasia as to constitute a tumour, is evident; in other cases it is most obscure.

Those parts of the vocal cords which undergo the greatest amount of mutual concussion and attrition, such as the junction of the anterior and middle thirds (the most frequent nodal point during phonation), the vocal processes and the inter-arytenoid space would seem to be most liable to chronic inflammatory and neoplastic changes. In the inter-

arytenoid space the result is a diffuse thickening (pachydermia), at the vocal process the typical pachydermic nodule. At the junction of the anterior and middle thirds of the cords there may be a "singer's nodule," consisting of a simple epithelial thickening (a miniature corn), a smaller or larger papilloma generally of soft consistence or a sessile or pendulous cedematous fibroma which may exceptionally contain glandular structure.

Growths at the anterior commissure may depend on the same causes, but it seems likely that they are at times of developmental origin, and are really embryonic remains allied to those congenital diaphragms sometimes occupying more or less of the space between the anterior parts of the cords.

The chief causes of irritation of the larynx are over-use or wrong use of the voice and irritating vapours or dusty atmosphere—for example, the black-board chalk in the case of teachers. Excess in tobacco smoke (especially "inhalation" of cigarette smoke) may also be quoted. Nasal obstruction leading to mouth-breathing or purulent nasal discharges inhaled into the larynx are among the most potent contributories. Syphilis and tuberculosis may induce such chronic inflammatory changes as predispose to the development of new growths, but the irritation of the microbes of pulmonary phthisis—the tubercle bacilli as well as the accompanying micrococci—is known to be capable of exciting the growth of papillomata. It is probable that laryngeal papillomata when multiple are due to microbic infection.

*Prognosis of innocent laryngeal growths.*—This is dependent mainly upon their accessibility for removal and the possibility of avoidance of the predisposing and exciting causes.

If not removed their tendency is to increase of growth leading to fatal obstruction to respiration, all the more rapid in supraglottic or intraglottic growths, also to continued and increased impairment of voice, more rapid in intraglottic or infraglottic growths (in the latter case still more if the growth is sufficiently mobile to be driven up between the cords during expiration). Spontaneous disappearance is possible in the case of papillomata, but cannot be counted upon.

After operation recurrence is probable unless the removal is complete. The writer's experience would lead him to the view that single pedunculated growths at the anterior commissure are unlikely to recur, whereas sessile ones at the junction of the anterior and middle thirds of the vocal cord are very likely to do so, as also are multiple papillomata.

The question of malignant transformation of benign growths cannot be left unconsidered. Practically, it only arises in connection with papillomata, which, in exposed parts of the body, have a tendency, under repeated or continued irritation, to develop into epitheliomata. There is no reason for immunity on the part of the larynx, but the results of Semon's collective investigation seem convincing as to its extreme rarity. Moreover, the evidence that while it occurred in one in two hundred and eleven of the cases on which no operation was performed and in only one in two hundred and forty-nine of those operated on, allows a margin in favour of operation. This is a complete answer to those who have been inclined to attribute to the traumatism effected by intralaryngeal operation a tendency to bring about malignant changes in innocent laryngeal growths.

In the few cases related by Fauvel the removal of the growth was followed by long-continued cauterisation with nitrate of silver.

*Treatment.*—This is not necessarily always operative. The avoidance of exciting and predisposing causes—for example, complete silence or

limitation of voice to a whisper for several months—is sometimes sufficient in cases of very small nodules due to over-use or misuse of the voice. Coughing must be absolutely prohibited or prevented. Avoidance of smoking or smoky atmosphere and moderation or abstinence in regard to alcohol and other causes of gastro-hepatic disturbance are also valuable prophylactic and therapeutic factors. The correction of errors in voice production is of vital importance. The writer is convinced of the beneficial effect of the vocal exercises devised by Holbrook Curtis and of a rational method of respiration in the use of the voice. The occasional application of astringents may contribute.

In other growths removal is the only treatment and it should be carried out *per vias naturales*. The form of instrument employed varies with the special experience of the operator.

The following practical hints, founded on the writer's practice, may meet with the approval of those who are accustomed to Morell Mackenzie's form of handle, and the forceps referred to are modifications of those with which he did his finest work.

Pendulous growths at the anterior commissure call for the cold snare, and, if it fails, Powell's or Lack's forceps with anteflexed tips. Similar growths on the edge of the cord may be removed with snare or Grant's safety forceps. For sessile growths on the edge of the cord, the latter instrument is pre-eminently adapted. For growths in the posterior commissure Wolfenden's or Lake's forceps, and for those on the upper surface of the cord, Whistler's are very useful.

Krause's handle is much use abroad, and his is the best known tube forceps to which various double curettes and other blades can be adapted. The advantages of these blades combined with a handle acting like that of Morell Mackenzie's are obtained by means of Watson Williams's recently devised instrument. A cutting punch-forceps with blades adapted for the four cardinal points has been invented by Jurasz, and the writer has found it invaluable for the removal of portions of growths for microscopical examination.

Cutting ring knives (Luc) and guillotines (Chappell) have been used by some, but British operators in general seem to pin their faith to some adaptation of Morell Mackenzie's instruments.

For the destruction of the stump various caustics have been employed, such as nitrate of silver, formalin, chromic acid, trichloroacetic or salicylic acid, the last named being in the writer's opinion particularly valuable for papillomata. The writer's recent experience impressed him very favourably with the value and practicability of the fine galvano-caustic point.

Among other means must be mentioned an instrument like O'Dwyer's intubation tube with thin-walled tubes having fenestræ cut in such positions as to engage the growth (usually papilloma in children) and snip it off. Tracheotomy has sometimes led to the disappearance of papillomata in children, but not constantly.

Cysts on the lingual aspect of the epiglottis may be avulsed, or elsewhere they may be incised, preferably by means of the galvano-caustic knife. Angiomata may be destroyed by means of the galvano-cautery.

Anæsthesia by means of cocaine has rendered many of these operations easy, which were formerly impossible. The best method seems to be the slow injection of about 5 minims of a 20 per cent. solution of hydrochloride of cocaine, by means of a laryngeal syringe, so that the liquid is allowed to trickle over the edge of the epiglottis (Westerman). The combination of local anæsthesia (cocaine) and general anæsthesia



(chloroform) introduced by Scanes Spicer, has added still further to our possibilities. Lastly, the use of Mount-Bleyer's "epiglottis lifter" has greatly facilitated the writer's examinations and operations. Escat, of Toulouse, and Lambert Lack have devised somewhat similar instruments. Kirstein's method of autoscapy is available for growths situated close to the upper orifice of the larynx.

The distance from the dorsum of the tongue to the vocal cord is sometimes very considerable and beyond the reach of ordinary laryngeal forceps—say fully four inches. In such a case the writer eradicated a papilloma of the size of a split pea by a few touches of the fine galvanocautery point.

Are there any circumstances which call for removal of non-malignant intralaryngeal growths by external operation? Fauvel, with characteristic decision, rejected this absolutely. Certainly the cases in which it is justifiable are extremely few (we are not considering growths on the outer aspect of the framework of the larynx). When, however, all endolaryngeal methods in the most skilled hands available have failed, or the size or vascularity of the tumour makes intralaryngeal measures impracticable, external methods are called for.

Tracheotomy may be practised in children with papillomata, who may not be amenable to endolaryngeal treatment, more especially if breathing is obstructed, in the hope that spontaneous disappearance of the growths may take place. It is also useful for the removal of a growth so low in the larynx as to be beyond the reach of intralaryngeal instruments.

Infrahyoid laryngotomy is adapted only for growths which should be reached through the mouth.

Thyrotomy had formerly a high mortality, but is practically nearly as safe as tracheotomy. It should, however, be avoided for fear of impairment of voice, as the result of imperfect coaptation of the vocal cords. No doubt a more complete extirpation may be effected in this way than by the natural passages. Recurrence is thus made less probable, but it is by no means excluded.

In the complete paper the writer will cite cases illustrating the points touched on in this summary.

#### Abstract of Introductory Paper by Professor A. ROSENBERG.

Reference is made to cases in which before the invention of the laryngoscope laryngeal tumours were removed through the mouth, to rare instances in which a polypus has been spontaneously expelled by coughing and to the occasional spontaneous disappearance of papilloma following an exanthematous disease. Although astringent applications may be of use in inflammatory nodules and in so-called singer's nodules, it is difficult to say how much is due to the simultaneous disuse of the voice. In other endolaryngeal growths, inhalation, insufflation, and injections are useless. As a rule operation is the only proper treatment, and endolaryngeal methods are to be preferred. General anæsthesia is generally necessary in children, but in adults local anæsthesia by cocaine is almost always sufficient. When the epiglottis lies far back, or when the growth is in the anterior commissure, it may be desirable to have the epiglottis pulled forward by a retractor in the hand of an assistant. Professor Rosenberg also discusses the special difficulties in treating papilloma in children owing to their refusing to permit the use of the laryngoscope, and in referring to intubation he points out the possible risk of dissemination of the growth. With regard to endolaryngeal instruments, he expresses a preference for the cutting curette, while



admitting that in certain cases better results may be obtained with the snare, a special form of which he will describe. He then briefly discusses the treatment of amyloid, lipomatous, myxomatous, and adenomatous growths, of tumours of thyroid origin, and of angiomas.

The discussion will be continued by Dr. N. C. Haring, Mr. Mark Hovell, Dr. S. Moritz, Dr. H. Smurthwaite, Dr. Scanes Spicer, Dr. StClair Thomson, Dr. Herbert Tilley, Dr. Ernest Waggett, Dr. Watson Williams.

#### INTRANASAL DISEASE AS A DETERMINING FACTOR IN THE PRODUCTION OF LARYNGEAL AND PULMONARY AFFECTIONS.

The discussion will be opened by Dr. Greville MacDonald (London) and by Dr. Samuel West (London).

Abstract of introductory paper by Dr. GREVILLE MACDONALD.

Referring to the unsatisfactory condition of a subject where the conflict of clinical facts, the contradictory opinions deduced by authorities, and the small help afforded by the physiologist, preclude the possibility of establishing a scientific basis for future investigation, the paper offers a working generalisation which may be a step towards the establishment of a definite law.

The writer deals with his own observations, and divides his cases into three classes:

1. Those pointing to the relief or cure of asthma by removing obstruction to easy breathing or obstruction causing pressure.

2. Those where the treatment of any other sort of abnormality in the nose is similarly successful.

3. Those where the mere cauterisation of the mucous membrane in a healthy nose results in relief or cure.

These three classes are then discussed *seriatim*. In the first, the most favourable forms of obstruction are, first, anterior hypertrophy of the inferior turbinals; second, septal spurs and deviations; third, adenoids; and, lastly, polypus. In the second class are found general œdema of the mucous membrane, especially when associated with excessive sneezing, frequently also with chronic bronchitic asthma. Not infrequently the cure of these cases is effected by the electric cautery. Atrophic rhinitis may also be responsible for asthma, and the amelioration of the nasal condition may result in cure of the bronchial symptoms. In the third class the writer endorses the valuable observations of Dr. Alexander Francis as to the frequent relief, and even cure, of asthma from the mere cauterisation of the mucous membrane covering the upper part of the triangular cartilage in perfectly healthy noses.

So far the clinical facts of the association of the nose with asthma are obvious enough. But they are further emphasised by the observation that occasionally the removal of polypus sometimes originates, for the first time, the onset of asthma.

Passing to his generalisation, the writer invites attention to three points of collateral evidence:

1. That whenever a patient complains of frequent and severe cold-taking, and we find any abnormalities whatever in the nose, we can almost promise to cure his cold-taking by curing the nasal abnormality.

2. That whenever a patient complains of paroxysmal sneezing, whether of daily attack or of longer interval, we are tolerably sure of curing him by correcting the nasal disease or malformation.

3. That a patient with polypus, less often with other form of obstruction, sometimes takes cold often severely, in the form of rhinitis, laryngitis, or bronchitis, after the removal of the obstruction. Probably the sudden exposure of a protected mucous membrane to cold air accounts for each of these accidents as well as the asthma.

Remembering these three points, which will be conceded by many observers, this generalisation may be formulated:

Any treatment that allays the irritability of the Schneiderian membrane, whether by operation and the ventilating of abnormally protected areas of mucous membrane, or by hardening the hyperæsthetic areas with the electric cautery, or by the exhibition of such local remedies as cocaine, or the very useful but pernicious nostrum known as "Tucker's cure," any such treatment of the nose may modify or arrest the onset of catarrhal attacks, whether they manifest themselves in symptoms of sneezing, laryngitis, bronchitis, and asthma.

The discussion will be continued by Dr. Colin Campbell, Dr. N. C. Haring, Mr. Mark Hovell, Dr. Macnaughton-Jones, Dr. H. Pegler, Dr. Knowles Renshaw, Dr. H. Smurthwaite, Dr. Scanes Spicer, Dr. StClair Thomson, Dr. Herbert Tilley, Dr. Ernest Waggett, Dr. Watson Williams.

The following communications have been announced:

Dr. MARCEL NATIER (Paris). "*Deafness: its Treatment through Acoustic Exercises by means of Tuning Forks. Physiological re-education of the Ear.*"

Professor ONODI (Budapest). "*The Disturbances of Vision and Development of Blindness of Nasal Origin induced by Disease of the Posterior Accessory Sinuses.*"

Professor ONODI will also give a *Demonstration of Photographs of his Preparations, illustrating the Anatomy and Surgical Treatment of the Accessory Sinuses of the Nose.*

Professor A. ROSENBERG (Berlin). "*Pulmonary Infusion: a Method of locally treating Diseases of the Lungs.*"

Abstracts of the following papers have been received:

"*On the Treatment of certain Forms of Non-Suppurative Catarrh of the Middle Ear by the Eustachian Catheter with Compressed Air and Nebulizer,*" by ADOLPH BRONNER, M.D.

Most cases of disease of the middle ear are due to a primary affection of the mucous membrane. The latter is directly continuous with that of the naso-pharynx and Eustachian tube. It is, therefore, of great importance that we should be able to treat not only the mucous membrane of the middle ear, but also that of the Eustachian tube, locally. Most authors follow the teaching of Politzer, and state that the use of

Politzer's bag is as efficacious as the catheter, if not more so. In Dr. Bronner's experience this is not at all the case. In fact, he thinks that the use of the bag is often harmful. The proper way to use the catheter is not to blow into it with a Politzer's bag, which is dangerous and often very painful, but to use Lucae's double bag.

With this a continuous current of air can be kept up and the pressure easily regulated. Better still is the large compressed air apparatus as used in America. This consists of a large receiver of seamless steel about three to four feet high and one to two feet in diameter. Air can be pumped into the receiver by an ordinary hand pump, or more conveniently by an automatic pump, attached to the water main, which gives a pressure equal to about three to four of that of the water. You can fix a so-called multiple communiter on to the receiver. This consists of one or more bottles connected with one another. The compressed air blows the liquid contained in the bottles against the walls of the same and breaks it up into exceedingly fine particles. In this form it escapes from the bottle and is blown into the middle ear through the catheter. Practically any drug—iodine, menthol, camphor, formalin, tincture of benzoin—can thus be sprayed on to the mucous membrane of the Eustachian tube and middle ear, and for any length of time, and under any pressure. When the drum is perforated the liquid, looking very much like vapour, can be seen escaping by the external meatus. It also, of course, enters into the cavities and recesses adjoining the middle ear. By an ingenious arrangement the flow of compressed air can be interrupted so as to produce up to 1000 vibrations per minute. This is very useful in breaking down slight adhesions of the drum to the middle ear, removing spasm of the tensor tympani muscle, etc.

By this method the immediate result obtained is not only greater than after the use of Politzer's bag, but more permanent, and the diseased mucous membrane of the Eustachian tube is treated at the same time.

In some cases Dr. Bronner uses the communiter several times at intervals of quarter- to half-hour, and often the hearing improves slightly after each application. Many cases of so-called dry catarrh of the middle ear are not due to affection of the mucous membrane at all, but to a primary disease of the osseous labyrinth. Naturally in these cases the catheter should be used most carefully. If sudden great pressure is used, as with Politzer's bag or the bag attached to the catheter, the hearing and tinnitus often become worse.

In dubious cases Dr. Bonner uses the catheter and iodine spray under very low pressure.

Dr. ALBERT A. GRAY (Glasgow) will exhibit and demonstrate macroscopic and microscopic preparations.

*Macroscopic*:—(1) Human membranous labyrinth. Unstained. (2) Human membranous labyrinth. The endolymph spaces have been injected with lamp-black. (3) Human membranous labyrinth. Stained with osmic acid and showing the distribution of the nerves. (4) Human membranous labyrinth. Showing the aqueducts of the cochlea and of the vestibule. (5) The membranous labyrinth of the seal. The noteworthy features are: the large size of the cochlea, the vestibule, and the semicircular canals.

*Microscopic*:—(1) Section of the human cochlea, showing the helicotrema. (2) Section of the cochlea of the guinea-pig. The peculiar substance above the organ of Corti is stained black with osmic acid. (3) Section of the cochlea of the mole, showing the peculiar spiral



arrangement round the outer hair cells and the relatively large size of the rods of Corti. (4) Section of the cochlea of the white mouse, showing the details of the organ of Corti in a very thin section.

*"Notes on a Case of Mastoid Abscess five weeks after Measles; Operation; Immediate Recovery,"* by L. A. LAWRENCE, F.R.C.S. (London).

Little girl, aged five, first seen June 3, 1904. Then a little discharge from left ear and a mastoid abscess on a level with the upper limit of the pinna. There were no granulations in the ear. An opening was made giving exit to about two drachms of pus, quite healthy and sweet. The mastoid was extensively destroyed, but there were no granulations, and a probe passed down towards the middle ear. Ear and abscess cavity packed with iodoform gauze and dressed daily. The ear continued discharging for less than a week, the discharge almost immediately becoming mucous. The abscess healed rapidly and completely, and (on June 30) the child was practically well.

*History.*—A healthy child as regards the ears till May 1, then an attack of measles. The abscess came during the third week without any complaint of the ear on the child's part.

*"Disease of the Posterior Ethmoidal and Sphenoidal Cells as a Cause of Laryngeal and Bronchial Affections and of Ozæna,"* by JOHN MACKIE, M.D. (Nottingham).

Briefly, the conclusions respecting nasal suppurations are:

1. That nasal suppurations for the most part are either in direct continuity with adenoids and the naso-pharyngeal catarrhs of childhood, or are set up later in life in noses where drainage has been interfered with by the deformities and hypertrophies left by these conditions of early life.

2. That the ethmoidal is the sinus most frequently involved.

3. That frontal and sphenoidal disease is almost invariably due to extension from the ethmoid, and rarely requires individual attention in treatment, providing the ethmoid has been thoroughly dealt with and drainage established in the middle meatus.

4. That antral disease, though occasionally due to diseased teeth, is far more often caused by defective drainage in the middle meatus.

5. That by bearing 3 and 4 in mind the treatment of frontal and antral disease is made easier, and the heroic surgical proceedings now being advocated are seldom necessary.

6. That disease of the posterior sinuses is the main factor in an ordinary ozæna and the very frequent cause of chronic catarrhal conditions of the pharynx, the larynx, the trachea and bronchi, associated with cough, purulent expectoration, and at times an oozy type of hæmoptysis; that such conditions are often mistaken for, and treated as, phthisis. Of this last the author has some very striking instances.

*"Some Practical Points in the Treatment, Operative and Non-Operative, of Frontal Sinus Suppuration with an Analysis of the Ultimate Results obtained in Forty Cases,"* by WM. MILLIGAN, M.D. (Manchester).

General observations. Diagnosis of frontal sinus suppuration (diffi-



culties of); aids to diagnosis. Acute suppurative sinusitis. Chronic suppurative sinusitis. Association with suppuration in other nasal accessory sinuses. Symptoms demanding special attention. Importance of preliminary intra-nasal treatment. External operations upon sinus. Importance of free drainage. Treatment of the mucosa lining the sinus. Should drainage tubes be used? Should the sinus be packed? Complete closure of external wound. Incomplete closure. Analysis of forty cases, with special reference to age, sex, sinus or sinuses involved, duration of disease, method of operation and after-treatment. Ultimate results.

*"Menière's Disease: a Clinical and Experimental Inquiry,"* by WM. MILLIGAN, M.D. (Manchester).

Usually accepted theories of the pathology of Menière's disease. Varieties of Menière's disease. Is the "symptom-complex" due to peripheral or central disease? Deductions from clinical investigations and experimental and operative investigations. Relation of deductions to the question of treatment.

*"On the Benign Neoplasms of the Septum Nasi with particular reference to Bleeding Polypus,"* by HEMINGTON PEGLER, M.D. (London).

1. In this paper the author proposes to review our knowledge of certain intra-nasal neoplasms (other than mucous polypi) clinically and pathologically benign.

2. Even with these limitations, this subject is so comprehensive that on this occasion but one group of neoplasms can be considered; that chosen being typified by the so-called "bleeding polypus of the septum."

3. These neoplasms derive importance from their liability to set up frequent and sometimes dangerous attacks of hæmorrhage from the nose, and to rapidly recur unless thoroughly eradicated.

4. The designation "bleeding polypus" has been in use in this country and abroad for some few years past, and though suggestions have been made for its discontinuance (Grünwald), the author advocates an opposite course owing to the practical value of a popular nomenclature by which a tumour that should be familiar to the medical practitioner can be referred to and recognised even though the term be not scientifically perfect.

5. The main objections are that—(1) The growth is not confined to the septum nasi; (2) it is not strictly speaking a polypus; (3) other vascular growths arise from the septum that belong to a different category.

6. The etiology of bleeding polypus of the septum which will be more conveniently called here nasal angioma, is still unsettled. Siebenmann, with whom Krieg concurs, traces its origin to rhinitis sicca; proliferation of the epithelium leading through stages to erosion and septal perforation in one class of case and to inflammatory tissue formation and proliferation in another. Grünwald ('Atlas of the Nose,' etc.), regarding bleeding polypus as a simple granuloma, seems to coincide with this hypothesis. Against this—

7. Angiomas histologically and clinically indistinguishable from the septal type grow not rarely from the inner surface of the ala nasi and with no apparent association with rhinitis sicca.

8. The theory that distension of the vessel walls (old and new) takes place from malnutrition thereof (Kyle and others) presupposes a non-inflammatory origin, and not being supported by microscopic confirmation must be regarded as surmise only.

9. The histology of nasal angioma is sufficiently distinctive to merit the employment of the term as a generic title for the group; individual members varying in unimportant details only. The type form is essentially a soft fibroma containing some myxomatous or cedematous tissue—more or less. The matrix is in every case permeated by vascular channels, or replaced at intervals by large interspaces filled with blood. The enclosing epithelium is stratified.

10. The term fibro-angioma is admissible when from age or other causes the fibrous element is unusually abundant, and accordingly as the blood spaces are small or extensive, it is styled a simple or cavernous angioma.

11. The inability of certain authors to distinguish satisfactorily between true angiomas of the nasal cavities and inflamed polypi, or simple cedematous polypoid hyperplasias of the turbinals is perhaps due to this admixture of myxomatous tissue, in the softer growths especially.

12. A more serious confusion not rarely to be found in the reports of experts is between simple nasal angiomas of the septal "bleeding polypus" type and true malignant tumours, *e.g.*, the sarcomata, angio-sarcomata, and endothelioma. The expression "sarcomatoid," which has been employed to indicate a doubt in the observer's mind as to the nature of the specimen, should in the author's opinion be avoided. A careful scrutiny of the material at his disposal with the kind collaboration of Mr. G. Shattock, at the College of Surgeons, has so far failed to discover any true sarcomatous elements.

13. Allowance has to be made for the somewhat deceptive appearance of many microscopic sections taken from the nasal cavities exhibiting young cell-tissue, which therefore require familiarity with special (nasal) pathology for correct interpretation.

14. The connective-tissue cells are especially aggregated around the vessels in the more vascular portions of the field. Many are fibro-blasts displaying a lack of definitiveness in their arrangement. Being cut in the section at various planes to their axes, they create a somewhat heterogeneous appearance in the tissue, sometimes suggesting that of a mixed-celled sarcoma. In most cases, however, groups of lymphocytes are freely scattered in the stroma amongst the fixed or free and proliferating connective-tissue cells.

15. A heaping up of the endothelial cells, due in many places to collapse of the young newly-formed vessels (Shattock), in other parts (probably) to true proliferation of the endothelial cells around the vessels, together with a kind of spurious alveolation of the matrix, has apparently been responsible for a diagnosis of endothelioma.

16. The epithelial covering is usually stratified, bounded by a horny layer of squames. Rarely ciliated columnar in unexposed parts. The author has found in one atypical case a spurious epithelial surface formed by blood clot. Masses of proliferated epithelium are sometimes to be seen in the sections.

17. The question of malignancy anent these growths when discovered clinically is obviously of the utmost importance to the practitioner, who should be in a position to reassure his patient positively on this point.

18. From polypoid hypertrophies of the septum and turbinal bodies, a typical nasal angioma may be distinguished by the single endothelial lining of the vessels and blood spaces. The author has seen a fibrous

investment, in one instance of fibro-angioma, but the generality of the vessels were free, and were easily distinguishable from the venous sinuses of the turbinal mucosa. Moreover, acinous glands have not been discovered in the author's material.

19. The favourite seat of bleeding polypus of the septum is Kiesselbach's area, *i. e.* the space towards the anterior extremity of the septum included within the vestibule, and immediately posterior to the lumen. It is practically identical with that of common epistaxis, simple erosion, and perforating ulcer. The next most frequent is the inner aspect of the *alæ nasi*.

20. Clinically the growth first excites attention by virtue of the repeated attacks of nose bleeding to which it has given rise on the slightest provocation.

21. At a varying interval after the incipient hæmorrhage, a feeling of obstruction supervenes and increases. Owing to the proximity of the growth to the nostril the stenosis soon becomes complete.

22. On inspection, a bright red usually lobulated body is seen, much resembling a raspberry. Examination with the probe discovers its attachment to the septal wall by a pedicle varying in thickness. If very broad the tumour assumes a mushroom shape.

23. In one case only—and this was atypical in structure and seat—has an external disfigurement been described. (A case of Brown Kelly; also alluded to in paragraph 16.)

24. The clinical *diagnosis* is not difficult in the hands of one skilled in rhinological examinations. True (squamous) papilloma resembles nasal angioma somewhat, especially in an early stage.

25. Papillomata are paler in colour, more finely papillated, smaller and more sessile, and bleed less readily.

26. Mucous hyperplasias are pearly and œdematous, do not bleed when touched with the probe, and occur less frequently on Kiesselbach's site.

27. Treatment is best effected by removal with the cold stout wire snare (No. 6 piano). If sessile, transfixion with a needle must first be performed.

28. The base must be thoroughly seared with the flat galvano-cautery burner; and this plan must be followed up by repeated applications of the cautery point or of chromic acid at each appearance of recrudescence. Actual recurrence must be regarded as indicating a want of thoroughness in the treatment of the base.

29. In Germany the chisel is more often employed (Krieg), and is probably quite radical in effect.

The paper will be accompanied by a drawing of "bleeding polypus" from life, and by microscopic drawings illustrating the principal points mentioned in the text.

"A Case of Congenital Word-Deafness," by W. S. SYME, M.D. (Glasgow).

The patient is a boy aged nine, of full size, cheerful, and healthy looking. The history given is that he has never spoken, and that he does not seem to understand when he is spoken to. And yet he is not deaf, because he hears music, and is frequently observed to hum tunes which he has heard played, and to hear at once, when, for instance, a street organ is in the neighbourhood. He plays with and as other children, is active and cleanly in his habits, dresses and feeds himself.



In fact, except for the defect referred to, there is nothing to suggest lack of average intelligence. On examination the tonsils were found to be much enlarged, and a mass of adenoid growth was felt in the nasopharynx. The tympanic membranes showed the usual condition found in adenoids. There was no other sign of previous ear disease, nor was there anything in his family or personal history to suggest intracranial disease. After removal of the tonsils and adenoids his hearing power was not appreciably altered.

It is impossible to obtain reliable results by examination with the watch or tuning-fork. A piano played in another room he evidently hears distinctly, but when spoken to he takes no notice. If, however, he is made to watch the lips of the person speaking, he attempts to repeat the sound of the words. If his eyes are covered he still attempts to repeat what is said to him, getting usually the number of syllables but not the words themselves.

*"The National Importance of the Thorough and Systematic Removal of Adenoids in Childhood,"* by GRIFFITH C. WILKIN, M.R.C.S.

1. The obligation of the State to the poor, especially in the country. 2. The general presence of adenoids amongst the children of the poor in the country districts the author has medically visited. 3. The general presence of adenoids for generations past as shown by paintings. 4. The altered condition of the kingdom through the growth of large cities. 5. Growths a cause of hawking and spitting. 6. A brief glimpse of the general practitioner's work showing the impossibility of his having time for the thorough examination of cases of the finer branches. 7. Suggestion for efficiently treating the trouble. 8. Remarks.

*"Some Observations on the Mode of Origin of Nasal Polypi,"* by EUGENE S. YONGE, M.D.(Manchester).

The central idea in this investigation was to endeavour to find some of the processes which immediately preceded polypus-formation, and to trace the progression of the disease from normal mucous membrane up to the fully-formed growth. Observations were made both on the cadaver and on specimens obtained from clinical cases.

The cases from which specimens were obtained for microscopic examination may be divided as follows:—

I. Cases in which the nasal tissues were not diseased. Obtained *post-mortem*.

II. A case of early nasal polypus. Obtained *post-mortem*. The outer wall of the left nasal cavity was examined, sections being made in successive antero-posterior planes. There was a condition of chronic inflammation of the various turbinal and meatal tissues, with the exception of the inferior meatus which was practically normal. The mechanical process of polypus-formation could apparently be traced from smooth (non-polypoid) mucous membrane to structures which showed the characteristics of ordinary mucous polypus. The mucous glands were degenerate almost throughout the sections. Other appearances, such as enormously thickened vessels in the middle and inferior turbinal regions, were also noted.

III. Clinical cases of nasal polypus at various stages, in which certain of the tissues were examined.

IV. A case of rhinorrhœa unattended by nasal polypus.



V. Cases of chronic inflammatory conditions of the nose, unattended by polypus.

Chronic catarrhal rhinitis may perhaps be taken as the type. The conditions observed in the middle turbinal and meatus, which regions may be regarded as the usual sites of polypi, differed from the appearances seen in the same regions, when polypi were present, in an early stage, chiefly in the following particulars:—

1. A mucous membrane free from the œdematous folds which seem to precede actual polypus formation, and to co-exist with them.

2. Active, as opposed to degenerate, glands.

3. A sub-mucosa which, especially in its superficial layers, failed to show the noticeable œdema which was present in the polypus cases. On the other hand, the instances of chronic catarrhal rhinitis gave evidence of long-standing inflammatory mischief similar to that exhibited by the group of polypus cases mentioned.

*Provisional conclusions.*—As a result of the study of the specimens exhibited, and of others, the writer brings forward the following propositions as being possibly worthy of discussion :

1. Judging from the sections exhibited, the occurrence of nasal polypus gives some evidence of being preceded by a chronic inflammation of the mucous membrane and of being a process which is partly mechanical and partly degenerative.

2. In view of the extremely frequent selection of the region of the middle meatus and middle turbinal as the seat of election of these growths, it is possible that the differences in histological structure, seen in the sections and known to exist in this area, as compared with the other parts of the outer wall of the nasal cavity, may be a predisposing factor in the production of the disease, assuming that the propinquity of the drainage openings of the anterior group of accessory sinuses is not regarded as a factor more capable, *a priori*, of predisposing to the disease.

3. The sections of the early polypus case (No. II) seem to indicate that the mechanical part of the process of polypus-formation is (at any rate in this instance) primarily an œdema of the mucous membrane of the affected regions. Following this there is the formation of shallow sulci on the mucous membrane, which give that structure a wavy appearance, but which later, as they deepen, produce the appearance of distinct folds. The folds tend to become constricted at their bases; they grow more œdematous, and finally assume the characteristics of a minute polypus. These œdematous projections are practically confined to the lower edge and the concavity of the middle turbinal and to about the upper two thirds of the middle meatus. They are considerably more noticeable in the anterior regions of the nose than posteriorly, and they differ markedly from the folds normally observed on the inferior turbinal. Similar appearances to those described above were observed in many other instances of polypus.

4. It seems necessary—apart from the question of any anatomical peculiarity of the middle turbinal regions, and of the influence of chronic inflammatory changes—to search for the determining cause or causes of the œdema, and especially of the œdematous projections which the sections (No. II) strongly suggest as the primary mechanical process in the formation of polypus in that case, and inferentially in other cases. The writer is unable to point to any theory which is capable of complete substantiation, but he believes that the question of the immediate influence of the degeneration of the mucous glands, on polypus formation, is worthy of further investigation.

His principal reasons for this statement are:—(1) The abundance of these degenerated glands in the mucous membrane subjacent to, and in the neighbourhood of, the polypi of which specimens were examined; (2) the absence of œdematous projections in the normal mucous membrane, and, generally speaking, at the points where the glands were normal in the turbinal tissues, in instances of polypus; (3) the presence in a section of the lower edge of the middle turbinal from a case of early polypus (No. III) of two isolated œdematous projections (similar to those observed in other instances of polypus), immediately beneath which lay the only group of diseased glands visible in the section, the other groups being normal and the remainder of the mucous membrane smooth; (4) the presence of active glands and the absence of œdematous projections in the middle turbinal regions in cases of chronic catarrhal rhinitis (which were free of polypi), although the other signs of chronic inflammatory action, which the sections exhibited, were distinctly similar to those seen in the mucous membrane of polypoid cases; (5) the microscopic appearances noted on comparing the whole length of the mucous membrane covering the lower boundary of the hiatus semilunaris (1) in a normal (non-polypoid case) and (2) in a case in which polypi were present in the nose.

On the other hand, inasmuch as in the case of nasal polypus (No. II) in which all the structures of the outer wall of the nose were examined, degenerated glands were observed in every part except the inferior meatus, it is not possible to think of gland-degeneration as the sole factor in determining the onset of the disease.

Dr. YONGE will exhibit and demonstrate his model of Meyer's apparatus for laryngeal demonstrations.

The following papers have also been promised:

Dr. WALKER DOWNIE (Glasgow)—“*Two and a Half Years' Experience of the Subcutaneous Injection of Hard Paraffin for the Removal of Deformities of the Nose.*”

Dr. STCLAIR THOMSON (London)—“*Arrest of a Case of Maxillary Sinusitis by Spontaneous Expulsion of Polypi through the Natural Ostium.*”

## Abstracts.

### NOSE AND NASO-PHARYNX.

Glatzel.—*On the Examination of the Permeability of the Nose.* “*Monatschr. f. Ohrenheilk.*,” January, 1904.

Zwaardemaker's method of measuring the permeability of the nose, by observing the marks left on a flat metal or glass surface by the expired air, is adopted by the author. The surface he uses is a nickel-plated piece of zinc plate. From the centre of both ends a piece is cut out, so that the plate will fit closely to the upper lip, below the nose. A straight line is marked from end to end, dividing the plate into two equal parts,

and at either end are marked four concentric semicircles. When the plate is held in position and breathed on, if both sides of the nose are quite free, the mark produced is more or less "butterfly-shaped" and will extend out to about the third semicircle on both sides. But if one side is more or less blocked while the other is free, the mark on the obstructed side will extend to perhaps the first or second semicircle, that on the free side extending to or beyond the third semicircle. Thus an estimate can be formed of the amount of obstruction present. The author maintains that the results obtained apply as well to so-called inspiratory as to expiratory obstruction.

Arthur J. Hutchison.

**Zuckermandl, E.**—*On the Occurrence of Cartilage in the Pharyngeal Tonsil.* "Monatsschr. f. Ohrenheilk.," February, 1904.

Referring to an article by K. Reitmann ("Monatsschr. f. Ohrenheilk.," 1903, No. 8) on the frequent occurrence of cartilage in the faucial tonsils, Zuckermandl remarks that cartilage develops in the body quite without any immediate relationship to the skeleton; and although the presence of cartilage in the faucial tonsil may be in connection with the second branchial arch, such connection is not proved and is not theoretically necessary. Cartilage may occur in the pharyngeal tonsil. Zuckermandl found it in the pharyngeal tonsil of an adult lion. The tonsil was cut into a series of 147 sections, and in every one of these cartilage was present. It lay in the connective tissue between the layer of glands and the masses of adenoid tissue; it was hyaline, and surrounded by perichondrium. In an embryo and in a new-born lion which Zuckermandl examined no cartilage was found in the pharyngeal tonsil.

Arthur J. Hutchison.

## TRACHEA.

**Tsakyroglous (Smyrna).**—*Two Cases of Leeches in the Trachea.* "Monatsschr. f. Ohrenheilk.," February, 1904.

During the year 1903 Tsakyroglous saw seven cases of leeches in the upper air-passages, viz. one in the nose, two in the pharynx, two in the larynx, and two in the trachea.

Of the tracheal cases, the first was a man aged twenty-five, who came to the hospital on account of hæmoptysis, dyspnoea, and sleeplessness, which he himself ascribed to the presence of a leech. On laryngoscopic examination a small leech was seen fixed to the trachea, quite beyond the glottis. It was removed with a pair of Fauvel's forceps under cocaine. The leech had been *in situ* six days.

In the second case the patient was a man aged fifty. The leech had been present nine days. Cocaine seems to be a strong poison for leeches. Having seized the leech with the forceps, it is useless to try to pull it out at once; a series of little twitching movements must first be applied till it lets go, then it can be lifted out, otherwise it simply slips through the forceps and remains *in situ*.

Arthur J. Hutchison.

## THYROID.

**Goris, C.**—*Note on a Series of Forty-two Cases of Operations for Goitre.* "La Presse Oto-laryngologique Belge," March, 1904.

Two of the patients in this series were over sixty years of age, one

being sixty-two and the other seventy-three at the time of the operation. All the cases were successful except one, in which the operation performed was exothyropexy, a procedure proposed by Poncet. The patient, a girl aged fifteen, died of broncho-pneumonia on the sixth day.

In two cases of advanced pulmonary phthisis calcified goitres pressing on the trachea were removed with the chisel and bone-forceps on account of threatening suffocation. The rest of the operations were enucleations and thyroidectomies, partial, except in one case, where the whole of the gland was diseased.

The indications for operation being signs of pressure on the trachea, the recurrent nerves, or the organs in the mediastinum, the author finds that laryngoscopic examination is of the greatest utility in deciding upon the necessity for interference. In one case he was able by its aid to diagnose the existence of a retrosternal goitre pressing upon the trachea, hardly visible from the outside.

Besides the usual dangers from hæmorrhage, which the author thinks are overrated, he alludes to an anomalous situation of the internal jugular vein caused by the tumour in its growth, following the course of the common facial vein, and insinuating itself between the jugular and the carotid. In one case, upon dividing the sterno-mastoid the internal jugular vein lay just beneath it on the surface of the goitre. The real danger of the operation performed under a general anæsthetic is asphyxia. Cessation of respiration during the operation made tracheotomy necessary in two of his cases. In one, where it occurred at the beginning of the operation, the operator divided the tumour in the middle line and opened the trachea, using the finger as a guide. He then controlled the hæmorrhage by pressure with tampons, while the assistant performed artificial respiration. Another possible accident during thyroidectomy is division of the recurrent nerve. It occurred once; the patient's voice returned seven months later.

Slight fever is always observed after the operation. The cough and hoarseness often noticed are due to a slight œdema of the laryngeal mucosa, probably caused by the interference with circulation from the numerous ligatures of veins.

One case of post-operative myxœdema was treated by thyroid extract. It was found possible to reduce the dose until a quarter of a tabloid every fourth day kept the patient in good health. *Chichele Nourse.*

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## EAR.

**Zuckerkindl, E.**—*On the Eustachian Tube in Ant-eaters.* "Monats-schr. f. Ohrenheilk.," January, 1904.

In Hyrtl's monograph on the comparative anatomy of the ear it is stated that in *Myrmecophaga jubata* there appears to be no Eustachian tube. Hyrtl and others, however, had examined only macerated skeletons. Zuckerkindl has had the opportunity of examining a fresh specimen, and has found that Eustachian tubes exist. The most noteworthy point about them is the absence of cartilage from the non-osseous part; the walls are formed of fibrous tissue, as they are also in echidna, bradypus and dolphins, and partly in rats and marmots. A description of the anatomy of the tubes is given in this paper. *Arthur J. Hutchison.*

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## REVIEW.

*Handbook of Diseases of the Ear.* By RICHARD LAKE, F.R.C.S.Eng.  
Published by Baillière, Tindall and Cox, London, pp. 232, with  
three coloured plates.

The readers of this journal are so familiar with Mr. Richard Lake's name and work that they will be prepared to give an eager welcome to his "Handbook of Diseases of the Ear." It begins with a description of the more important anatomical points in regards to which Mr. Lake has always been a diligent and original investigator. There follows an excellent chapter on the general and special investigation of the patient, containing numerous valuable "wrinkles." The author discusses the question of intra-nasal treatment in a very dispassionate manner. The antagonism to this factor in treatment entertained by some observers is well known to our readers, and Mr. Lake advocates a very reasonable "happy mean." One of his sentences is apparently the expression of a self-evident proposition, namely, "Intra-nasal surgery may be undertaken with advantage if it is possible to render more lasting any benefit obtained from special attention to the ear." Probably this sentence would be clearer if divided into two, as is the case in several instances throughout the book where the obvious desire to avoid wordiness has been carried to an unnecessary extent. The portion of the description of tuning-fork tests at the foot of page 48 would stand amplification. The chapter on acute inflammations is concise and practical. In the one on the chronic inflammations the distinction between the adhesive and the sclerotic forms is well brought out. We doubt whether the statement that in oto-sclerosis "the bone-conduction is diminished" is meant to be interpreted absolutely (p. 128). Chronic suppurative inflammation and its complications as well as the necessary operations are well described. The coloured plates and engravings will be found most helpful, the latter being of exceptional merit.

Altogether the work is eminently instructive. The statements are throughout most reliable and the opinions sound. The only improvement we could desire would be a slight revision here and there of the literary form. The book ought to command a ready sale and a second edition ought soon to be required.

## BOOKS RECEIVED.

**Dr. Johann Fein.** *Das Angeborene Kehlkopfdiaphragma* mit 2 Tafeln und 2 Zeichnungen. Berlin W. 30 Verlag von Oscar Coblentz. 1904, Mk. 2.40.

*The Medical Annual.* A Year Book of Treatment and Practitioner's Index, 1904. Twenty-second year. Bristol: John Wright and Co., Stone Bridge. 7s. 6d. net., stereoscope 2s.

**C. Mansell Moullin, M.D.Oxon., F.R.C.S.** *The Surgical Treatment of Ulcer of the Stomach.* London: John Bale, Sons and Danielsson, Ltd. 1902, 2s. 6d. net.

**Dr. E. J. Moure.** *Traité Élémentaire et Pratique des Maladies de la Gorge, du Pharynx et du Larynx.* Avec 202 figures dans le texte. Paris: Octave Doin. 1904, 12 fr.

**Edmund Owen, M.B., F.R.C.S.** *Cleft Palate and Hare Lip: The Earlier Operation on the Palate.* London: Baillière, Tindall and Cox. 1904, 2s. 6d. net.

THE  
JOURNAL OF LARYNGOLOGY,  
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### EDITORIAL.

#### THE SEVENTH INTERNATIONAL OTOTOLOGICAL CONGRESS.

THE Seventh International Congress of Otology was held from August 1 to 4 at Bordeaux. The historic city chosen for the *venue*, the munificence of the hospitality accorded to its members, without mentioning the intense heat and the *grands vins de Bordeaux*, will make the meeting ever memorable to those who took part therein.

Although scarcely as international in character as when the sixth meeting was held in London in 1899, the attendance was, nevertheless, a large one; and the President, Dr. Moure (of Bordeaux), whose princely hospitality was a prominent feature of the Congress, with the secretary-general, Dr. Lermoyez (of Paris), and the treasurer, Dr. Lannois (of Lyons), are to be warmly congratulated upon the excellence of their arrangements.

British otology was represented by Professor Urban Pritchard, (ex-president), Drs. Dundas Grant and Chichele Nourse, Messrs. Cresswell Baber and Macleod Yearsley (of London), Sir William Macewen (of Glasgow), and Dr. Henry Smurthwaite (of Newcastle-on-Tyne). Addresses and papers were contributed to the programme by Professor Pritchard, Dr. Dundas Grant, and Mr. Macleod Yearsley.

The greater number of members reached Bordeaux on Sunday, July 31st, in time to take part in the preliminary reception held by M. Pitres, *doyen* of the Faculty of Medicine, at the fine hall of the

Faculty. This reception proved a great success, and opened the Congress in a most auspicious manner.

On Monday, August 1st, the opening meeting took place in the presence of the Mayor of Bordeaux and M. Pitres. Dr. Moure, in his address, offered the Congress a cordial welcome. He said that the town of Bordeaux was not only happy to see so many foreign otologists, but that it was especially fitted to receive them because it was the only town in France which offered an official chair to otology. After paying tribute to those aurists who had passed away since the last Congress—Delstanche, Grulet, Schwann, Sécrétan, Gouguenheim, Landreit de la Charrière, and Miot, Dr. Moure gave a rapid sketch of the history of French otology, which began in 1683 with the work of Du Verney. Its activity during the last century had brought it to a position of equality with every other special branch of medicine and surgery.

Professor Urban Pritchard, the retiring President, then followed with a valedictory address, which will be found on page 452 of this issue.

Dr. Lermoyez, the Secretary-General, spoke next. It would be remembered that in 1899 it was announced that the Government of the French Republic had accepted the patronage of the Congress, and he now read a letter from the Minister of Public Instruction apologising for his unavoidable absence on account of important business, and expressing great interest in the Congress. Dr. Lermoyez then read the following names as the official delegates from the various countries represented: Professor Politzer (Austro-Hungary), MM. Brockaert and Delsaux (Belgium), Señor Forns (Spain), and Messrs. Hinkle and Richardson (United States). He then proposed cordial votes of thanks to the town of Bordeaux for its expressions of welcome, and to the University for its courtesy in allowing the use of the Hall of the Faculty of Medicine for the meetings.

The following officers were then elected unanimously: President, Dr. Moure; Secretary, Dr. Lermoyez; Treasurer, Dr. Lannois; Vice-presidents, Drs. Brieger (Germany), Knapp (United States), Pritchard (England), Capart (Belgium), Cisneros (Spain), Gradenigo (Italy), Politzer (Austro-Hungary), von Stein (Russia), and Schmiegelow (Denmark); Secretaries, Messrs. Faure, Neumann, Quix, Bobone, Macleod Yearsley, Barkan, and Forns.

It was finally announced that the Committee of Organisation had decided, by eighteen to eleven votes, that the next Congress should be held in 1908 at Buda-Pesth, under the presidency of Professor Böke.

During the afternoon the work of the Congress was proceeded with, some twenty communications being read, and at five o'clock the Mayor of Bordeaux gave a brilliant reception at the Hôtel de Ville, the beautiful picture galleries and apartments of which were thrown open to the Congress.

On August 2 a discussion was opened by Drs. Politzer, Delsaux, and Gradenigo, on the choice of a simple and practical acoumetric formula. This was followed by various communications until two o'clock. The afternoon was spent in a most interesting archaeological excursion to St. Émilion. The party examined the unique underground church, the ruined Cloître des Cordeliers and their caves, the bell foundry, and other interesting features of this beautiful old French town, after which they were entertained at a banquet by the United Syndicates of Wine Merchants and Vineyard Proprietors of the Gironde.

The morning of August 3 was occupied by the discussion upon the diagnosis and treatment of labyrinthine suppuration, opened by Drs. Brieger, von Stein, and Dundas Grant. Despite the intense heat, this, with other communications, occupied the greater part of the day, until the whole Congress departed for Carbon Blanc, the beautiful country residence of the President. Dr. Moure and his charming partner, Madame Moure, received the guests upon the lawn under the shade of enormous magnolia trees in full blossom; and later, in illuminated grounds which would put to shame the best transformation scene ever devised, a banquet took place which fully justified the reputation of Bordeaux as the home of the best cooking in France.

Drs. Knapp, Schmiegelow, and Botey opened a discussion upon the technique of the opening and subsequent treatment of otogenetic cerebral abscess on August 4, and until five o'clock certain remaining communications occupied the attention of the Congress. At five o'clock the closing ceremonies took place, when speeches were made by Professor Pritchard, Drs. Dench, Gradenigo, von Stein, and others, on behalf of their respective countries.

On the motion of Mr. Cresswell Baber, it was proposed to hold the Congress triennially, instead of every four years, but, after some discussion, the proposition was lost by 29 votes to 35.

In the evening the final banquet was given at the Villa Biarritz, Caudéran, by the Committee of Organisation, in conjunction with the French Otological Society.

The morning of August 5 found such members as remained in Bordeaux embarking in a steamer for Pauillac, in the Médoc country. Here a lunch was given, after which the various châteaux



were visited, including Château Lafite and Château Mouton Rothschild.

Excursions to Caunterets and Bagnères-de-Luchon were organised for August 6, 7, and 9, but these were but sparsely attended.

MACLEOD YEARSLEY.

## SEVENTH INTERNATIONAL OTOLOGICAL CONGRESS, BORDEAUX, 1904.

ADDRESS DELIVERED BY THE RETIRING PRESIDENT,  
PROFESSOR URBAN PRITCHARD, M.D.

MONSIEUR LE PRÉSIDENT, Messieurs et Confrères,—Permettez-moi, d'abord, de vous féliciter d'être ici, en France, un pays qui a toujours tenu une position de premier rang dans le monde scientifique.

C'est à la France que nous devons le Docteur Ménière, qui nous a appris, par ses recherches fameuses, à discriminer le Vertige aurale, des maladies de cerveau—d'un côté—et des maladies des organes de digestion, de l'autre, une découverte si importante, si bien reconnue, que le nom de Vertige de Ménière est maintenant adopté pour désigner cette condition, dans tout le monde scientifique.

C'est aussi la France qui nous rappelle le nom de Löwenberg. C'est lui, qui, après Meyer de Copenhague, fut un des premiers de nous démontrer le rôle importante que jouent les végétations adénoïdes dans les maladies de l'oreille; et qui nous a indiqué un des meilleurs méthodes de traitement.

Et combien d'autres ne pourrais-je pas nommer d'Otologues français, que notre visite ici doit nous rappeler, qui, par leurs travaux, ont rendu des services, non seulement nationales, mais *internationales*! Mais je me contenterai de vous signaler le nom de Docteur Moure, l'otologue éminent de ce cité de Bordeaux, qui va occuper, tout de suite, la position honorable du Président de notre septième Congrès Internationale.

And now, gentlemen, I must ask your permission to continue in my own language.

These international congresses constitute, as it were, a series of landmarks in the path of our science; and therefore we may well ask ourselves to-day, What progress has been made in otology during the last five years?

Well, you will remember, gentlemen, that at our meeting in London an earnest hope was expressed that an important advance

would be made, in the near future, in our knowledge of treatment in that group of conditions included under the heading of non-suppurative diseases of the middle ear. I regret to say that this hope has not yet been realised. It is true that we have made some advance in the pathology; it is true, also, that we have come to understand better the difference between catarrh and that unmanageable condition termed "sclerosis." But, so far as treatment is concerned, the increase in our knowledge has been chiefly of the negative order; that is to say, it consists chiefly in our having learnt how useless were many of our older methods. We must not forget, however, that this clearing of the ground is still something.

. But now, if we turn to suppurative disease of the ear, we may certainly congratulate ourselves on the satisfactory advance made, the result of which is that we see far fewer cases of intercranial disease now than we did five or six years ago. Undoubtedly this is due to the fact that the post-aural operation is so much more frequently performed, and so much better carried out than it formerly was. I well remember how Sir William Macewen, when speaking of operations for intercranial suppurative disease (at a meeting of the British Medical Association, at Leeds), reminded us that these operations should never have been required. For, said he, had earlier and better treatment of the ear condition itself been carried out, the intercranial mischief would not have occurred. Well, undoubtedly, by our complete post-aural operation we have done a great deal towards the prevention of intercranial disease. But, gentlemen, I am going a step further than Sir William Macewen. For I venture to prophesy that, before many years have elapsed, mastoid operations will—I was going to say, have almost become things of the past; but that might be going too far—at least, be far less frequent; partly because of the greater perfection in the treatment of middle-ear suppuration, and partly to our patients understanding the importance of early attention to "discharge from the ear." And I am glad, indeed, to believe this; for, grand as has been the result of this complete post-aural operation in the saving of life, still, the subsequent conditions are not always quite so satisfactory as some enthusiastic surgeons perhaps may think; and I therefore heartily endorse the words of Professor Lucae at our last Congress, when he said, that instead of being proud of saying, "I have operated on so many patients," one should be prouder of saying, "I have cured so many patients without operating."<sup>1</sup>

<sup>1</sup> "Transactions of the Sixth International Otological Congress," p. 94.

Turning now to internal ear disease, we may certainly lay claim to some advance, both in regard to diagnosis and treatment. Nerve deafness can now be better discriminated from middle-ear deafness by our improved methods of diagnosis. What numberless cases of nerve affection used to be attributed to middle-ear catarrh! nay, may I be forgiven if I say, how many such mistakes do we not make even now! I venture to suggest that we should all, older and younger men alike, pay more attention to improving still further our methods of this diagnosis. In our methods of treatment of internal ear affection, not only has the medical treatment of Ménière's disease made an advance, but, since our last Congress, surgery has been stepping in to give us valuable assistance.

At the General Medical Congress at Paris in 1900<sup>1</sup> I called attention to a then recent operation by Mr. Charles Ballance, which resulted in an extraordinary recovery from Ménière's vertigo. The patient had middle-ear suppuration with very marked deafness, and most severe vertigo. Mr. Ballance performed the complete post-aural operation, and finding a sinus leading to the semicircular canals, burred into them and into the vestibule, and finally skin grafted over the whole, with the result that the patient lost all her vertigo, and the hearing power was wonderfully improved.

But surgery has helped us still further. Mr. Richard Lake, one of my colleagues at the Royal Ear Hospital, bearing in mind the case to which I have just referred, recently determined to operate in a non-suppurative case of Ménière's disease, a case which had resisted medical treatment, and which was causing great distress to the patient.<sup>2</sup> Mr. Lake performed the ordinary post-aural operation, and then burred into the semicircular canals and vestibule. The result was that after a short period of increased vertigo, the whole of the Ménière's symptoms disappeared, and the disease was, so far, practically cured. The patient's hearing was also much improved, though the tinnitus remained.

From this slight survey, I think, gentlemen, that we may feel that steady, if not rapid, progress is being made in our branch of medical science; and I trust that at the close of this Congress we may return to our work with fresh ideas, increased enthusiasm, renewed vigour, and so cause the rate of that progress to be further accelerated.

<sup>1</sup> "Comptes Rendus, Section d'Otologie, XIII<sup>e</sup> Congrès Internationale de Médecine," 1900, p. 312.

<sup>2</sup> JOURNAL OF LARYNGOLOGY, RHINOLOGY AND OTOTOLOGY, July, 1904, p. 350.

## SOME OBSERVATIONS ON THE MODE OF ORIGIN OF NASAL POLYPUS.<sup>1</sup>

By EUGENE S. YONGE, M.D. EDIN.,

Honorary Assistant Physician, Manchester Hospital for Consumption and Diseases of the Throat.

OUR knowledge of the processes which precede and are the actual and immediate causes of the formation of mucous polypus of the nose is extremely limited. The want of definite information, in this particular instance, is partly due, according to the opinion of an eminent Continental authority, to the fact that no observer has, up to the present, been able to demonstrate, in a satisfactory manner, a nasal mucous membrane in which the special changes and appearances could be traced from normal tissues up to polypus-formation. The same authority, Heyman (2), believes further that this manœuvre will perhaps never be effected.

The observations on the subject of the etiology of polypus, which the writer has carried out during the last two years have had for their object the solution of the problem suggested by Heyman's remarks, and also, incidentally, the search for some of the processes which immediately precede the formation of those œdematous "growths," concerning the pathogenesis of which such innumerable theories have been advanced. The results which have been obtained are submitted for examination and criticism.

### PLAN OF INVESTIGATION.

The plan adopted in making the investigation, briefly stated, was as follows :

Macro- and microscopic examinations were made of tissues removed from the undermentioned cases, in some of which the whole of the structures of the outer nasal wall were examined in successive antero-posterior planes, and in others only such parts as the regions of the middle turbinal and middle meatus. Probably the most interesting and useful case, which was met with in the investigation, was the instance of early bilateral nasal polypus, in which all the intra-nasal tissues were examined *post mortem*.

(a) *Specimens obtained post mortem*.—*Normal (non-polypoid)* : 1. Fœtus of seventh month (whole nasal cavity). 2. Infant aged twelve months (outer wall of left nasal cavity) ; also tissues from middle

<sup>1</sup> Communicated to the Section of Laryngology and Otology at the Annual Meeting of the British Medical Association, held at Oxford, July, 1904.



turbinal and meatal regions of children of various ages. 3. Outer wall of nasal cavity of adults at various ages. 4. Normal mucous membrane from maxillary antrum, frontal sinus, anterior ethmoidal cells and lower lip of hiatus semilunaris.—*Pathological*: 1. Outer walls of both nasal cavities, etc.; man aged fifty-two years; condition: early nasal polypus on both sides; no accessory sinus suppuration; no history of intra-nasal operations. 2. Outer wall of left nasal cavity; man aged fifty-four years; condition: chronic atrophic rhinitis. 3. Outer wall of left nasal cavity of child aged ten years; marked post-nasal adenoids and hypertrophied tonsils were present in this case.

(b) *Clinical cases*.—(Portions of tissue were obtained from middle turbinal, middle meatal, and other regions.)

1. Cases of early polypus; no accessory sinus suppuration detected. 2. Cases of long-standing polypus; previous nasal treatment. 3. Cases of polypus, at various stages, associated with accessory sinus suppuration. 4. A case showing polypoid degeneration of the left inferior turbinal, mucous polypi in the right middle meatus, and chronic empyema of the right maxillary antrum.

5. Cases of chronic inflammatory conditions of the nasal cavities, unattended by polypus.

#### THE HISTOLOGY OF THE "POLYPUS-REGIONS."

Without going into any detailed description of the normal anatomy of the intra-nasal structures, it is desirable to mention such points as may bear upon the subject of the mode of origin of nasal polypi.

With reference to the usual position of these growths, it is probably agreed that the region of the middle meatus, especially in its anterior part—the concavity of the middle turbinal, the neighbourhood of the hiatus semilunaris, the processus uncinatus, and the infundibulum—is by far the commonest area, as Zuckerkandl was the first to demonstrate, for their site of origin.

A part of the writer's observations was directed to a histological comparison of these regions of the outer wall with the various other regions of the nose. To sum up the results of the examination and comparison, it may be said that in the areas most generally selected by mucous polypus the mucous membrane is thin and usually possesses low folds. The sub-epithelial tissue is loose and abundant, and the erectile tissue comparatively scanty (Fig. 1). The glands are numerous, except on the outer, concave (meatal) surface

PLATE I.



FIG. 1.—NORMAL MIDDLE TURBINAL.  
Showing group of mucous glands.

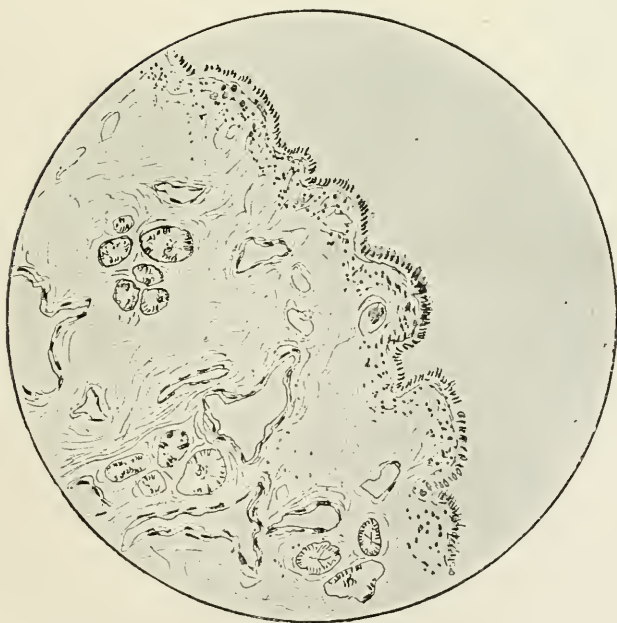


FIG. 2.—POSTERIOR PART OF MIDDLE MEATUS.  
Showing low, oedematous folds; also glands in state of cystic degeneration, and signs of chronic inflammation in tissues generally. (Case of early polypus.)



of the middle turbinal, where they are few in number, and where also the mucous membrane is smooth. (On the outer nasal wall they are of the simple tubular variety in the superior turbinal region and of the racemose variety elsewhere.) These histological particulars, broadly speaking, distinguish the polypus regions, and the writer has not been able to find the same *ensemble* in any other part of the outer nasal wall. But it is the sub-epithelial tissue which is of special interest, as its structure in the middle turbinal and meatal regions appears to be the principal factor in determining the selection, by œdematous outgrowths, of these districts for their site of origin. In the foetus and young child the sub-epithelial tissue does not appear to differ markedly in the middle turbinal district from that in the inferior turbinal. In the adolescent and in the middle-aged it is more abundant and looser in the former district than in the latter. If a vertical-transverse section of the three turbinals and meatuses be traced from above downwards the sub-epithelial tissue will be seen to be firm, scanty, and fibrous in the upper turbinal and meatal regions. Just above the commencement of the lower free border of the middle turbinal the tissue becomes looser; as the middle meatus is reached this change appears more marked. The tissue gradually becomes closer in arrangement towards the lower end of the middle meatus, and on the inferior turbinal it is firm and noticeably different from the same tissue in the middle meatal region.

In old age the sub-epithelial tissue is closer and more fibrous-looking. The writer is at present making some observations on specimens of the nasal tissues of a negro (obtained through the kindness of Dr. Birkett, of Montreal) with a view to discovering whether there are any histological differences to account for the comparative immunity of the negro races from nasal polypi.

#### THE APPARENT PROCESS OF POLYPUS-FORMATION.

It is to be understood that the various steps in the process of polypus-formation which are traced below, are only described as they appeared to occur in those cases which were examined, and on the assumption that the appearances noted were rightly interpreted.

It was possible in some instances of nasal polypus to follow the processes, which seemingly preceded the formation of the growths, from normal mucous membrane up to the formation of œdematous excrescences, which corresponded individually to the usual conception of the structure known as a mucous polypus. This method



of investigation was adopted whenever possible, both in the instances of the disease which were associated with accessory sinus suppuration and in those which were not so associated.

In every case there was evidence that polypus-formation was accompanied by inflammation of the nasal mucous membrane, sometimes of a very chronic character. There was also evidence that the inflammatory condition was primary; and although the signs of inflammation were generally most marked in the neighbourhood of the polypoid growths, yet they were often apparent in areas of the nasal wall remote from the growths (Fig. 5). In certain parts of the middle turbinal and middle meatal regions—which were usually the centres of observation—the specific appearances of inflammation differed in no respect, so far as could be judged, from those signs of the process which were seen in the same districts in cases of chronic rhinitis unattended by mucous polypi. But in polypus cases the mucous membrane underlying, and in the vicinity of these growths, and sometimes throughout the middle meatal and a part of the middle turbinal region, gave evidence, as would be expected, of a superadded condition, viz. that of *œdematous infiltration* of the submucous tissue.

#### THE PRODUCTION OF ŒDEMA.

This œdematous condition was confined to the middle turbinal and middle meatal regions, and did not seem to be present to any noticeable extent in any other districts of the outer nasal wall. In a vertical-transverse section through this wall, in a case in which polypi were present in small numbers, the œdema seemed most marked in the upper two thirds of the middle meatus; it was least marked on the outer concave surface of the middle turbinal. The œdematous infiltration began to appear at about the inner edge of the lower free border of the middle turbinal, and ceased at the lower end of the middle meatus. The condition was much more apparent in the anterior region of the nose than in the posterior. These appearances were not noted in any examples of nasal disease, other than polypus, which were examined.

#### THE DEVELOPMENT OF ŒDEMATOUS FOLDS.

In addition to the œdematous infiltration there were, in the regions specified above, a number of finger-like folds of the mucous membrane which partook in the general œdema (Figs. 2 and 3). They were found by microscopic examination in the "polypus

PLATE II.

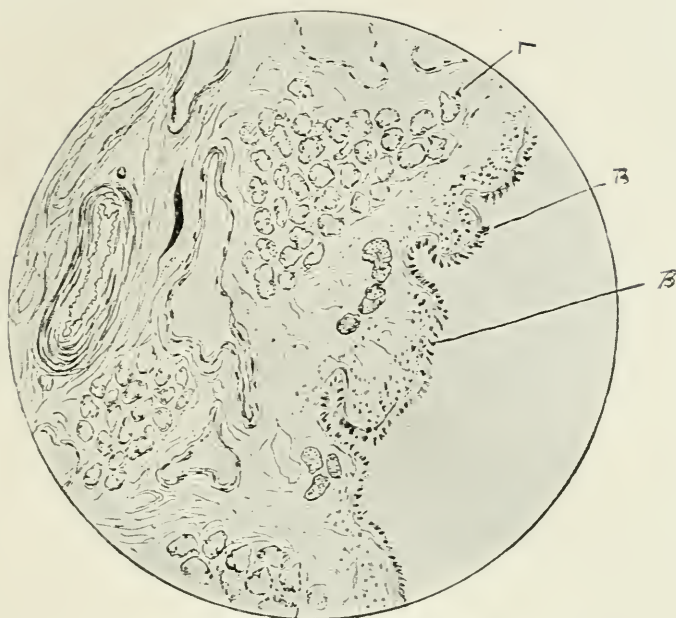


FIG. 3.—VERTICAL TRANSVERSE SECTION THROUGH MIDDLE MEATUS.  
(CASE OF POLYPUS.)

Showing early stage of formation. A. Degenerate glands. B. B. Edematous folds. The inferior fold, under a high power, shows all characteristics of mucous polypus, including also new glands (seen at base). The submucous tissue is cedematous.

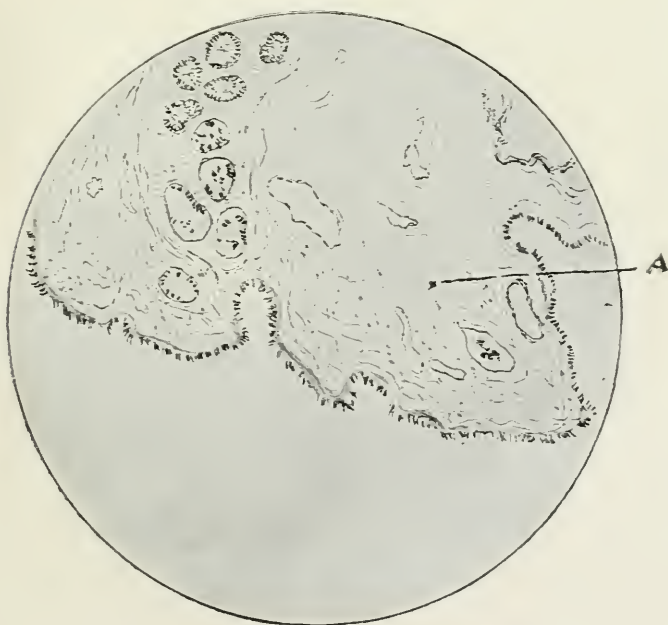


FIG. 4. —MIDDLE MEATUS.  
Showing early mechanical stage of polypus (A).



regions" of all the cases in which polypi had developed. Sometimes the folds were found at considerable distances, comparatively speaking, from the actual growths, but they were also invariably numerous and in places well developed in the neighbourhood of the polypi. These œdematous structures were not observed in normal cases; in chronic inflammatory nasal conditions; in chronic rhinitis, nor in any cases which the writer had the opportunity of examining other than nasal polypi, and in those only in the "polypus regions." They appeared in their early stage to be distinct folds of the mucous membrane and not definite outgrowths, as when traced from normal, flat mucous membrane, the summits of the folds did not seem to rise above the level of that structure. Both Zuckerkandl (1) and Heyman (2) have described them as occurring in polypus cases, and have regarded them as papillary excrescences.

The œdematous folds differ from the folds found in normal cases, on the lower free border of the middle turbinal, on the anterior regions of the middle meatus, and on the surface of the inferior turbinal, in being usually more abrupt in outline, in sometimes showing a tendency to become constricted at their bases and in their œdema. Also they may occur in a region of the middle meatus which is normally devoid of folds. The size of these structures varied considerably, and in some instances they appeared to possess the essential characters of a mucous polypus (Figs. 3 and 4). There is indeed some evidence that they represent the initial mechanical stage of those growths. There seems to be little doubt that in a number of cases they are merely the normal folds which have become œdematous; but that fresh folds are also formed by a pleating of the swollen mucous membrane appears to be very probable.

#### THE DEGENERATION AND CYSTIC DILATATION OF THE MUCOUS GLANDS.

The writer's observations have led him to believe that glandular changes are of great importance, because the investigation of cases seemed to suggest strongly that they are the principal *determining* cause of the occurrence of the growths.

Assuming that an inflammation, often chronic, of the mucous membrane is the constant or usual antecedent condition of nasal polypus, it is difficult to explain why it should, of itself, cause marked œdema in a localised region of the nose—an œdema which is sometimes (as in the case of isolated polypi) in a topographic



sense, very limited indeed.<sup>1</sup> In the examples of chronic rhinitis, uncomplicated by polypoid changes, which the writer has examined, and in cases of inflammatory disease which have lasted long enough to undergo fibrosis and atrophy, he has not observed that œdema of the mucous membrane has occurred either locally or generally. It seems reasonable to conclude that there is some determining factor or factors which may be present or, rather, which may be superadded, in some instances of nasal inflammation and not in others. At least one of these determining factors appears to exist in the interposition of certain glandular changes.

As remarked above, the cases of chronic inflammatory disease of the nose, unattended by polypus, gave indications of long-standing inflammation in the middle turbinal and meatal regions which were similar to those observed in the mucous membrane in the neighbourhood of and subjacent to mucous polypi. But the morbid appearances were observed to differ in two respects. In the chronic inflammatory cases the glands were almost invariably active, or, to speak more precisely, they were not undergoing degenerative changes, and the mucous membrane was not œdematous. In the polypus cases, on the other hand, the portions of mucous membrane referred to, showed that there was degeneration and cystic dilatation of the glands, often to a very marked degree, and the mucous membrane itself was notably œdematous (Figs. 3, 4, and 6, *cf.* Fig. 1). In tracing the edge of a middle turbinal, removed from a patient with early nasal polypus, it was often found that the amount of œdema and the number of œdematous "projections" varied considerably at different parts of a long microscopic section. The condition of the glands varied also, and in rather a striking manner. Where the mucous membrane was merely inflamed, the whole group of underlying glands would show no signs of degenerative change. In the moderately œdematous parts, some of the glands would be healthy, some in a state of cloudy swelling, some undergoing degeneration, and in the neighbourhood of definite polypi all the underlying glands would be degenerate. When the amount of œdema was small it was frequently observed to be limited and localised about groups of partly degenerated glands, and the sub-epithelial tissue, immediately superficial to the group of affected

<sup>1</sup> The writer has not touched, in the present paper, upon the important subject of the influence of bone disease in the production of nasal polypi, because his observations have led him rather to endeavour to ascertain, in the first instance, whether there is sufficient evidence of the process occurring as a primary mucous membrane condition.

## PLATE III.

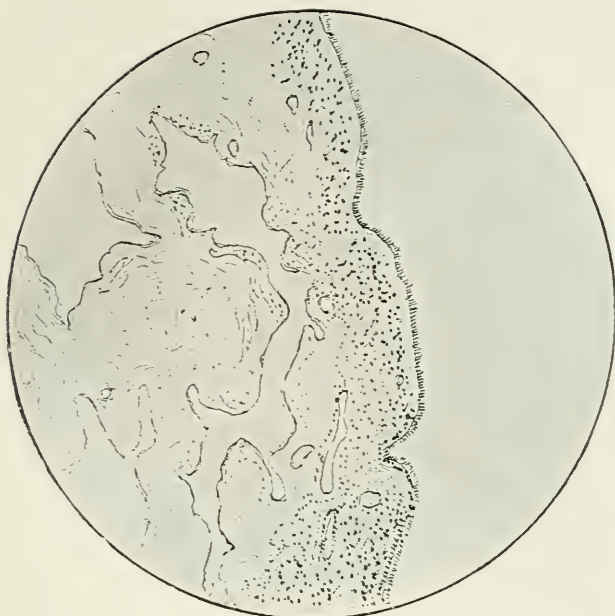


FIG. 5.—INFERIOR TURBINAL, REMOVED FROM CASE IN WHICH POLYPI WERE PRESENT IN MIDDLE TURBINAL REGIONS.

Shows signs of chronic inflammation, but normal non-œdematous folds.



FIG. 6.—ANTERIOR PORTION OF MIDDLE TURBINAL (CASE OF EARLY POLYPTUS). Showing abrupt œdema (A) immediately superficial to a layer of glands in state of cystic degeneration (B), non-degenerate glands (C), and firm tissue. The section, when traced further in the direction of C, showed firm non-œdematous tissue superficial to the glands, wherever the latter were healthy.



glands, was the first to give evidence of the infiltration. Grünwald (3) explains the œdema in polypus cases by the constriction of the vessels by endo- and periarteritic proliferations, but this vascular condition was observed in quite as marked a degree, as far as could be estimated, in cases of chronic rhinitis where there was no œdema present, as in cases where such appearances were seen.

Judging by what can be gathered from the literature, the mucous glands do not play a very striking part in the history of the ordinary inflammatory conditions of the nasal mucosa. In the more acute cases they may enlarge and become much convoluted. In chronic cases they shrink and tend to disappear. Similarly in the pathogenesis of those inflammatory papillary hypertrophies of the inferior turbinal, which do not, in the writer's opinion, enter into the category of mucous polypi, the glands seem to take little part.

Further evidence of the special influence of glandular changes on polypus-formation appears to be furnished by the following observations which were made: (1) The invariable presence of degeneration and dilatation of the glands of the mucous membrane in the areas subjacent to and in the neighbourhood of mucous polypi. (2) The absence of œdema where the glands were active. (3) The presence of small isolated areas of markedly œdematous mucous membrane, associated with corresponding isolated patches of degenerated and dilated glands (Fig. 6). (4) The presence of glandular changes in the instances of polypus associated with accessory sinus suppuration and in those in which polypus was not so associated. In the sinus cases, however, cystic degeneration was more in evidence than simple degeneration.

The question naturally arises whether the œdema may not be primary, and the glandular degeneration secondary, instead of, as the writer believes, the reverse order being the probable sequence. Also, it may be asked whether both morbid processes may not be due to a common cause, and be contemporary in point of origin. In favour of the glands being primarily affected are, perhaps, the following facts: (1) The absence of any œdema where the glands were healthy and of any definite noticeable œdema in the mucous membrane (of polypus cases) taken from regions where no glands were present. (2) The appearance of abrupt œdema associated with a patch of glands in a state of cystic degeneration. This was noticed in a large number of instances, of which Fig. 6 is an illustration of one example. In the portions of the section contiguous to the part shown (on the right hand), the glands were active, and the tissues superficial to them were not œdematous. There can be



seen the abrupt interposition of a layer of glands, in a state of cystic degeneration, drawn like a broad boundary across the section. The tissues superficial to this layer of glands were oedematous; but there were no evidences of gradually increasing inflammatory change or of the gradual development of oedema.

It is possible that the peculiar and special method in which the blood is supplied to the glands in the turbinal regions, combined with the predisposition to oedema induced by the histological peculiarities of the middle turbinal regions, may help to explain why oedema only occurs in certain cases of inflammatory disease.

Zuckerkandl's account (1) of the arrangement of blood-vessels in the turbinal regions is, briefly and as it appears to concern the present subject, as follows: The arterial supply of the mucous membrane ramifies in three networks. One network supplies the periosteal layer, a second is distributed to the glands, and a third to the superficial epithelial layer. The glands, which are surrounded by a special capsule, are closely enveloped by their network of capillaries. Around the excretory ducts there is a tube-shaped network, which, as Zuckerkandl believes, helps to keep the duct closed when the gland is not actively secreting. When the mucous gland and the duct (which always participates) undergo cystic dilatation, pressure is exerted on the *réseau* of vessels which encircles the gland, and on the tubular network which is around the duct. The writer believes that this "unequal pressure" on the capillaries may be sufficient to cause oedema in the particular areas and tissues in which the phenomenon is noted. The suggestion, however, is at present purely conjectural.

#### THE INFLUENCE OF STRUCTURAL PECULIARITIES OF THE "POLYPUS REGIONS."

The structural peculiarities in the polypus regions, which have been referred to, appear to be necessary auxiliary factors—other causes, *e.g.* inflammation and gland degeneration intervening—for the occurrence of polypus at certain ages; negatively, for its usual absence at certain other ages, and lastly for its occurrence, in the special districts in question, when a specific irritant, such as pus from an accessory sinus, is present. Moreover, even assuming that degeneration and cystic dilatation of the mucous glands can be shown to determine the initial stages of polypus formation, they (glandular changes) cannot apparently have these effects unless the sub-epithelial tissues are sufficiently thin and loose. Thus, in one instance of polypus, the mucous glands were degenerated in

places throughout the nose, although polypi and œdema were only seen in the middle meatal and a part of the middle turbinal regions. Also in an instance of chronic atrophic rhinitis there were a few groups of degenerated mucous glands in the region of the middle turbinal, without any evident œdema in the atrophied and fibrous sub-epithelial tissues.

#### PROVISIONAL CONCLUSIONS.

The following provisional conclusions are brought forward for discussion and further investigation.

(1) Mucous polypi of the nose, in the majority of instances, are probably consequent upon and certainly coincident with inflammation of the mucous membrane of the nasal cavity.

(2) The primary mechanical process is a localised œdema of the inflamed mucous membrane, which œdema, on account of certain structural peculiarities of the lining membrane, does not, in the great majority of cases, develop in any intra-nasal area but that of a portion of the middle turbinal and of the middle meatal regions. Analogous structural peculiarities are present in the mucous membrane of some of the accessory sinuses.

(3) The determining cause of the œdema, in the regions specified, is the degeneration and cystic dilatation of the mucous glands.

(4) The particular shape which polypi usually assume, their number, probably the appearance, in some instances, of recurrences, and other special peculiarities of these growths, are due to the œdematous mucous membrane being thrown into folds, and to the normal folds becoming œdematous. Certain of the folds quickly increase in size by the absorption of serous fluid and favoured by gravity, and finally present the appearance of ordinary mucous polypi.

(5) The "polypoid" outgrowths which take origin on the inferior turbinal and more rarely on the septum, generally differ markedly in microscopic structure from mucous polypi, and although they claim a common inflammatory origin, these conditions are distinct, principally on account of the dissimilar structure of the nasal regions from which they respectively take origin (Zuckerkan<sup>1</sup>l).

The writer is at present arranging to conduct some experiments, with the view of producing mucous polypi artificially in animals, on the basis of the causative influence of glandular changes.

In connection with this paper, the writer is greatly indebted

for much kind and valuable assistance to Professor Symington of Belfast, to Dr. Milligan, Professor Delépine and Dr. Knowles Renshaw of Manchester, to Dr. W. Glegg of Birmingham, and lastly to Dr. Reginald Nichol of Manchester, who has shown much accuracy and skill in connection with the illustrations.

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### PACHYDERMIA LARYNGIS.

A Summary of a Lantern Demonstration giving the Results of a Research delivered before the British Laryngological, Rhinological, and Otological Association, May 13, 1904.

BY JOBSON HORNE, M.D.,

Surgeon to the Metropolitan Ear, Nose, and Throat Hospital; late Ernest Hart Memorial Scientific Research Scholar.

DR. JOBSON HORNE said that as the little time left at their disposal did not permit of a paper being read, he would, after a few preface remarks, demonstrate upon the screen preparations in illustration of the points he wished to bring under their notice. The morbid change in the larynx they were about to consider was first described and brought into clinical prominence by Virchow in 1887. Since then many typical cases had been recorded. In spite, however, of the close attention paid within recent years to the larynx, one might say, without fear of contradiction, that clinicians had been able to add but little to Virchow's description. On the contrary, from the discussions on cases that had been brought forward from time to time, it would seem that some confusion had arisen through a lack of proper appreciation by clinical observers of the pathogenesis of the morbid condition.

The essential feature of pachydermia laryngis consisted in a hyperplasia of the epithelium, and certain changes in the subepithelial tissues. To the naked eye this hyperplasia might be (1) diffuse, affecting the vocal processes, the adjacent portion of the cords, the interarytenoid region, the ventricular bands, and at times the epiglottis. It was then spoken of as *pachydermia laryngis diffusa*. Preparations were shown in illustration of this.

Or the hyperplasia might be (2) more circumscribed and pronounced in places, more commonly about the vocal processes, and more rarely in the interarytenoid space, the heaped up epithelium forming warty excrescences; it was then spoken of as *pachydermia verrucosa laryngis*. This was also demonstrated by lantern photographs of macroscopic preparations.

In drawing the above distinction, it was important, Dr. Horne said, to bear in mind that the pathogenesis of the two varieties was essentially the same. Under the microscope, he had always found the warty form associated with the diffuse, so that he regarded the former as only one of degree.

Dr. Horne next described in detail the changes that occurred in the subepithelial tissues.

Speaking of the ætiology, he said it was commonly stated to be in some degree uncertain, and that the affection was usually, if not always, due to excess in alcohol or tobacco, and improper use of the voice. Whilst fully admitting that indiscretions in diet and hygiene were important factors, he thought this teaching of the ætiology was fallacious, since it overlooked the fact, as shown by his investigations, that the causes which governed the development of the morbid process were rather to be found in the entire organism than in the larynx itself.

The hyperplasia was occasioned by an irritant exciting, as it is said, the formative power of the cells. The irritant might be infective or traumatic in nature. Syphilis and tuberculosis must be reckoned amongst the more important of the exciting factors in pachydermia laryngis. The term "idiopathic pachydermia" had been suggested to distinguish the so-called primary affection, or that associated with "chronic catarrh," of the larynx, from that accompanied by syphilis and tuberculosis. In the so-called primary cases, or "idiopathic pachydermia," he had, clinically and in the *post-mortem* room, not uncommonly met with evidence of chronic interstitial nephritis, and he exhibited specimens removed from such subjects. He was, therefore, inclined to regard the pachydermatous changes in such cases as part of a general fibrosis, and the term "idiopathic" as inadequate.

Faulty voice production, it was conceivable, might occasion a primary pachydermia. Photographs of the larynx in a living subject whilst producing the singing voice in a strained and faulty manner were shown on the screen. The superficial vessels, owing to the determination of blood to the surface of the cords, were seen tortuous to a degree, almost amounting to varicosity. This local congestion if often repeated would act as an irritant, and the pro-



liferation of the minute capillaries and vascular elements—previously demonstrated in photographs of microscopic sections—would ensue. And yet how frequently one met with faulty voice production, and how comparatively seldom with pachydermia of the larynx of sufficient degree to be clinically observed. Dr. Horne regarded the transgressions in diet and in hygiene of the voice which so frequently accompanied faulty voice production as more material factors in the etiology than the transgressions of natural limits of normal voice registers.

On the whole, therefore, he was of the opinion that the epidermoidal changes described by Virchow were more than “skin deep,” and that in the majority of cases it was as illogical to regard pachydermia as a local or idiopathic condition as it would be to speak of jaundice as a disease. By restricting one’s views to the larynx, one might often fail to make use of the clue to the diagnosis of a more serious dyscrasia, and to the correct treatment of the laryngeal lesion itself.

Dr. Horne proceeded to the demonstration of the gross lesions to be observed in the advanced cases and to a consideration of the symptomatology they occasioned. In the warty stage, he said, the appearance presented *in the mirror* was very characteristic. From one vocal process projected a broad-based excrescence which on phonation was received into a pouch or depression on the other vocal process. This clinical phenomenon was pathognomonic, so much so as liable to be regarded as the begin-all and the end-all of pachydermia laryngis. Huskiness was the main symptom. The amount of huskiness was often very slight, and far less than one might have expected in the presence of such hyperplastic changes at the vocal processes. In fact, the slightness of the vocal symptom had always been a matter for clinical comment and surprise. Different explanations had been offered. Virchow in 1887 described the occurrence of symmetrical oval swellings in the region of the vocal processes, the centre of each swelling being slightly depressed; this depression he attributed to the firmer fixation of the mucous membrane to the connective tissue at this spot. Fraenkel, writing in 1889, did not accept this explanation of the depression, but attributed it to pressure exerted by the tumour of one cord upon the corresponding tumour of the other cord. Semon,<sup>1</sup> writing in 1897, was of the same opinion as Fraenkel, namely, that this unilateral crateriform depression was probably the result of pressure by the opposite elevation, and not of the firmer fixation of the mucous membrane to the connective tissue at this spot, as Virchow

<sup>1</sup> “A System of Medicine,” by Professor Clifford Allbutt, vol. iv, p. 790.

believed; for if the latter were correct, the depression would not be invariably *unilateral*.

With a view of arriving at a solution of this difference of opinion, Dr. Horne had investigated the point in both its pathological and clinical aspects. The results of the investigation were communicated to the British Medical Association at Portsmouth in 1899. The following is a brief summary of the results:

Firstly, in all the specimens examined the depression or pouch was found to be *bilateral*; it was usually more marked on one side than the other, but it was present on both cords.

Secondly, in no case did the pouch or depression, when examined by the microscope in serial sections, present evidence of pressure or attrition. On the contrary, a greater degree of hyperplasia was found. The theory of the formation of the depression by pressure was therefore not supported by histological evidence.

Thirdly, there was histological evidence to show that at certain spots the mucous membrane below the vocal process was, as described by Virchow, more intimately adherent to the underlying cartilage.

The following is the explanation of the whole question offered by Dr. Horne:

1. In the *normal* larynx a line formed by a fold of mucous membrane starts from behind the vocal process of each cord, and takes a crescentic course, passing downwards and forwards, running immediately below the process and parallel to the middle third of the cord. The line is most marked at the vocal process and then thins off. It is more apparent in the male sex. The mucous membrane immediately above and below this fold is more intimately adherent, hence the fold. The fold itself may be duplicated, and occasionally may be so marked as to suggest in the image a second cord.

The vocal process may be looked upon as a *point d'appui*, and this fold represents, and may be conveniently spoken of, as a line of traction.

2. In *pachydermia laryngis* the changes in the region of the vocal process—as observed at an autopsy—are symmetrical and bilateral.

3. When, in the later stage of *pachydermia*, a warty growth appears in the region of the vocal processes it is not strictly a neoplasm. It is only a localised hyperplasia, or exaggeration of a pre-existent structure, viz. the fold or line of mucous membrane already referred to as a line of traction.

4. The mucous membrane immediately above and below the

part of the fold that has become exaggerated is more intimately adherent, hence the furrow or depression. In this way there is formed at least one depression on each cord. For this reason the unilateral theory of the pouch cannot stand.

5. These furrows and excrescences about the vocal processes being developed at symmetrical spots and in the same plane, presumably would interfere with the apposition of the cords and the production of voice; but, clinically, this apposition is not interfered with—at least, not sufficiently to prevent phonation. The solution of this difficulty rests in the following observation.

6. By the time the warty condition about the vocal processes is established *the cords are not both on the same plane*. An alteration in the plane of the cords at once explains the preservation of voice. One cord has only to be on a slightly higher plane than its fellow to permit of a dovetailing of the excrescences and depressions. This dovetailing may be spoken of as a *vertical adaptation of the cords*.

The alteration in the plane of the cords was demonstrated by Dr. Horne in macroscopic and microscopic preparations of larynges affected with pachydermia. In the former the larynx had been hardened without being opened, and showed the cords in the same position as in the cadaver from which the specimen had been obtained. In the latter the larynx had been prepared in a similar manner, and then set in hard paraffin, so that a series of vertical sections cut at right angles to the vocal processes presented the relative positions occupied by the cords.

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## SOCIETIES' PROCEEDINGS.

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### PROCEEDINGS OF THE OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.

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*Seventeenth Ordinary Meeting, held in the Hall of the Faculty of Physicians and Surgeons, 242 St. Vincent Street, Glasgow, on Saturday, May 21, 1904.*

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*The President, Dr. THOMAS BARR, in the Chair.*

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The PRESIDENT said: My first and most pleasant duty, speaking for my Glasgow colleagues and myself, is to offer you all a most hearty welcome to Glasgow. We have looked forward to this visit of the Otological Society of the United Kingdom with the greatest interest, and we are highly gratified to see so many

gentlemen from a distance able to attend and honour us with their presence. I hope it will be a memorable meeting, not only by virtue of the work done, but also for the friendships formed. I am glad also to see gentlemen present who, although not members of the Society, have sympathy with our work, and who are specially interested in the topics we have to discuss to-day. I hope they will regard themselves for the time being as members of the Society and take part in the various discussions. There is one announcement I have to make with much regret, namely, that owing to illness Professor McKendrick will not be able to give us the demonstration which he so cordially promised. However, we are fortunate in that the Professor's senior assistant, Dr. Walter Colquhoun, has kindly agreed to act for the Professor. The demonstration in the University will be almost entirely of an experimental character, and is sure to prove a most interesting feature of our Glasgow Meeting. I shall not, gentlemen, detain you any further, and have now much pleasure in introducing to you Professor Cleland.

PROFESSOR CLELAND gave a demonstration *On the Development of the Mastoid and Tympanic Plate*.

The paper will be found reported in our August issue.

The PRESIDENT said that he was sure the members had listened with great interest to Professor Cleland's exhaustive and valuable demonstration of the developmental processes connected with the temporal bone. The matters brought before the meeting by the learned Professor were not only of great anatomical interest, but they had a very practical bearing upon the surgical treatment of the temporal bone.

Dr. P. McBRIDE read a *Short Note on a Case of Cerebellar Abscess and Absence of the Mastoid Antrum*.

It must be considered doubtful whether, given a normal tympanum, it is possible for the mastoid antrum to be altogether absent *ab initio*. That it may vary in size within very wide limits is, of course, generally known. A careful perusal of current literature has, however, enabled me to find very little reference to obliteration of the antrum as a result of chronic middle ear suppuration. Indeed, the only absolutely definite statements I have been able to discover are from the pen of Trautmann ("Chirurgische Anatomie des Schläfenbeins"). This author (p. 8) writes, "Even if the mastoid process is sclerosed to a great



degree, so that the antrum has disappeared, the aditus remains," and again (p. 36) "The antrum may entirely disappear."

At the meeting of the Otological Society in May of last year, Dr. Herbert Tilley related a case in which he operated and altogether failed to find a mastoid antrum. He again referred to this case at the meeting of the Society held on February 1 of this year, and the matter was once more under discussion in March, when Dr. H. E. Jones exhibited a temporal bone, in which the antrum was all but obliterated.

As the time at my disposal is so short I shall refer very briefly to the clinical features of the case which forms the basis of this communication and confine myself as far as possible to the—from the standpoint of this society—most interesting anatomical, or perhaps I should say pathological, condition which was found to exist.

I was summoned to see in consultation a young man who complained of headache, photophobia, and vomiting of a cerebral type. He had been giddy some days before, but this symptom was less marked when I saw him. The pulse was slow (48–56) and his temperature below 98°. There was an old standing middle ear suppuration on the left side. Examination of the eyes by an expert revealed nothing abnormal. It was determined to perform a radical mastoid operation as soon as practicable, as a preliminary step. This could only be arranged for twenty-four hours later, but prior to this the symptoms had somewhat improved.

The operation presented unusual difficulties. It was, of course, proposed to open up the middle ear cavities—in fact to perform what is known as the radical operation. The first difficulty encountered was the lateral sinus, which was exposed quite near the meatus. It is worthy of note that no pulsation was observed. Bleeding from the bone was quite unusually marked, indeed this hæmorrhage greatly delayed the successive steps of the operation. Owing to the position of the sinus it was determined to seek the antrum by Stacke's method. With this object in view, the outer wall of the attic was removed by means of a burr worked by an electric motor. When, however, I attempted to pass a protector into the aditus, I could find nothing but a small depression. I therefore arrived at the conclusion that there was no antrum, and was obliged to content myself with scraping out the tympanum, bringing away granulation tissue. No fœtor, however, was noticed. I then syringed with hydrogen peroxide which gave rise to bubbling. There was a little vomiting next day, but after that the patient was able to retain nourishment, was certainly

better and only complained of headache, now more definitely occipital. Temperature and pulse continued subnormal, but it must be remembered that phenacetin, caffeine, and one or two doses of salicylate were employed to relieve the pain. Curiously enough, the patient seemed to be capable of having his attention distracted from the pain. So much was this in evidence that it was thought possible that there might be an hysterical tendency. He also insisted upon lying with his occiput resting on his arms—a position which he said gave him relief. Everything seemed to be going well, excepting for the continuance of pain and subnormal temperature, until four days after he was first seen. At 4 p.m. the nurse noticed a slight incoherence and soon afterwards he passed urine and fæces in bed. It was thought well by his medical attendant and myself to have a further consultation. We therefore requested a physician who had been called in at the beginning of the illness and a surgeon to see the patient with us.

We all agreed that the probabilities were in favour of an intracranial abscess, but that localising symptoms were wanting. The patient now for the first time was rambling, and he several times jerked his right leg when disturbed. An examination of the eyes on this occasion revealed commencing choked disc on the left and hyperæmia of the disc on the right side. Both temperature and pulse had begun to rise for the first time after 4 p.m., and were respectively 99° F. and 60. The decision we came to was that if the symptoms did not improve next day we should trephine (1) over the temporo-sphenoidal lobe, (2) failing to find pus there explore the cerebellum.

Without any warning the next morning between four and five o'clock the nurse noticed a change in the breathing, and in a few minutes the patient was dead.

Autopsy by Dr. Shennan, Pathologist to the Royal Infirmary, revealed:

1. A very large abscess in the left lateral lobe of the cerebellum.

2. A small abscess in the inferior occipital lobe on the same side in contact with the tentorium.

3. Lateral sinus free from thrombosis.

4. Between the tegmen tympani and dura there was some pus.

5. The tegmen was enormously thickened—so much so that considerable force had to be used to make the chisel penetrate it.

6. There was no antrum at all.

7. The antrum on the other side was opened into and found to be small—about the size of a pea. No definite bone disease could

be made out with the naked eye. A piece of bone was removed from the petrous portion by Dr. Shennan for microscopic examination.

The chief points of interest were—

1. "Spaces containing cellular vascular tissue and in this, which is at parts necrotic, clumps of bacilli and cocci staining by Gram's method are to be made out, probably of pyogenic nature."

2. "A section from the neighbourhood of the tegmen tympani showed irregular spaces containing vascular young connective-tissue." (Dr. Shennan.)

The absence of the antrum is to us as otologists the most interesting feature of this case. Probably the cavity became gradually filled up by inflammatory growth of bone, similar to that which caused the marked thickening of the tegmen tympani. I must regret now that the portion of bone corresponding to the usual seat of the antrum was not removed for microscopic examination. Having read Trantmann's statement before referred to, I did not realise the extreme rarity of the condition before me, so far as the experience of others was concerned. True, I had not previously met with an instance of obliterated antrum, but until my attempt to find some account of the condition in other works, and until I had read and heard the discussions on the subject in this Society, I did not realise that my case was in certain respects almost unique. In conclusion, I desire to express my thanks to Dr. Shennan, Pathologist to the Royal Infirmary, for his kind assistance.

Mr. ARTHUR CHEATLE thought it a very curious thing with reference to the absence of the antrum that although temporal bones had been examined for a great number of years, and although many hundreds were collected together in the Museum of the International Congress, there was not one instance of an absent antrum. All reported cases had been diagnosed during operation or without removal from the body. Without meaning any discourtesy to anyone, he refused to believe in absence of the antrum, apart from malformation of the middle ear, until a specimen was placed in his hands.

Dr. McBRIDE, in answer to a question put by the President, said that the absence of the antrum was undoubtedly pathological.

The PRESIDENT said that in operating in these chronic cases associated with sclerotic bone, the antrum was found occasionally to be exceedingly small, although he was never satisfied that it was entirely absent or obliterated. In such cases, when the antrum is small and the bone sclerosed, the operator is sometimes confronted

with much difficulty owing to the abnormally forward position of the sigmoid part of the lateral sinus being right in the path of the operator in his search for the antrum.

Dr. URBAN PRITCHARD asked Dr. McBride to explain again how he failed to get the probe into an antrum. Did he think he got the probe into the attic?

Dr. McBRIDE replied yes.

Dr. PRITCHARD asked, then being satisfied that the probe went in the attic, how did he assure himself that the deeper part was not a small antrum? For the attic and antrum being continuous, the only way to tell the difference is by the smoothness of the walls of the former and the roughness of the wall of the latter cavity.

Dr. HERBERT TILLEY thought that Mr. Cheatle's refusal to believe in the absence of an antrum until he had cut sections of the temporal bone, in which such an abnormality occurred, was a scientific one, because without such an intimate examination it would be impossible to say that some small cavity was not present which would represent the antrum. With regard to his (the speaker's) own case, and to which reference had been made by Dr. McBride, he could only say that during the radical mastoid operation it was impossible to pass any probe from the attic tympani through the aditus and antrum, and the position of the latter was indicated by a small depression on the posterior aspect of the "attic." Furthermore, the bony wound which had been made in the search for the antrum had extended beyond the level of the "attic tympani." In such circumstances he felt justified in speaking of the absence of the antrum although he agreed that obliteration might possibly be open to less objection. He thought such an obliteration was quite a possibility, for it must have been within the experience of most present to have operated upon mastoids in which the antrum was a tiny cavity in which it would be impossible to place a small dried pea. The difference between such small antra and one entirely obliterated was surely only a question of degree. No arguments of any weight had been adduced to explain why there should not be defective development of the mastoid antrum; on the other hand, three or four cases had now been described where it was practically undeveloped or if originally present had become obliterated. The absence of the sphenoidal, the maxillary, and the frontal sinuses had occasionally been noted, but of course it was very rare, and the chances of any one individual coming across such abnormalities in actual practice were still rarer.

Mr. HUGH E. JONES remarked that one of the two specimens which he had shown at the last meeting was taken from the



dissecting room and was not pathological so far as the ear was concerned. In that specimen he was making an ordinary dissection of the tympanum and aditus and found that the short process of the incus was not lying in the entrance to the aditus, but below it, and that the latter passage was represented by a narrow tube of mucosa which led from the attic backwards, not to a definite antral cavity, but to break up at once into innumerable minute cells. There were a few fair-sized cells near the apex, but the rest of the mastoid was composed of dense bone or very minute cells. In this specimen the external meatus was unusually large, the mastoid relatively small, and the zygomatic ridge very well marked.

Dr. KERR LOVE said he would like to put alongside Mr. Cheate's experience, which was chiefly, he thought, from the anatomical standpoint, his own from the clinical standpoint. Ten years ago, when the radical operation was not so common as it now is, and when, for his part, he was chiefly doing partial operations, he believed in the absence of the mastoid antrum because on one or two occasions, during say the first fifty operations which he did, he could not find the antrum, but he now thought that in those cases he lacked boldness. If he had performed, as he now does, the radical operation in the more modern way, he would have found it. During the last 350 operations on the mastoid he had always found without fail the antrum, and yet he must admit that Dr. McBride's case is rendered conceivable by the smallness which the antrum is sometimes reduced to, he supposed by the encroachment of thickened bone on its various walls.

Mr. C. A. BALLANCE said he had no doubt that all would admit that any part of the body may be congenitally absent, and that the tympanum and antrum may be, and are in rare instances congenitally absent. This congenital absence of the tympano-antral cavities he did not think was of great interest to the Otological Society from the practical point of view, and that it was important for the Society not to lay stress on the question lest others outside the Society, less familiar with mastoid operations than his fellow members, should be led in difficult operations to use the excuse of an absent antrum for imperfect performance of these important operations. He had no doubt, however, that while congenital absence of antrum might be excluded as a practical question that pathological diminution of the size of the cavity, or even *almost* complete obliteration of the antral cavity, not unfrequently occurred as the result of the irritation of the purulent secretion producing outgrowths of bone, especially in sclerosed mastoids. He had many times known the neck of the antrum to be nearly occluded by an

exostosis, and on several occasions the cavity of the antrum was diminished so as to be of a very small size. He pointed out that the same process affected frequently the osseous meatus, and was familiar to surgeons in other parts of the body, as in the sclerosing ostitis of the head of the tibia after suppuration had ceased in that bone. There was one question he should like to ask Dr. McBride, and it was this: Why was he content to do only a mastoid operation when the symptoms pointed clearly to a gross intracranial lesion? How was it possible that the mastoid operation could save such a patient from impending death?

Dr. McBRIDE said with regard to the points raised by Dr. Urban Pritchard and Mr. Cheatle, it seemed to him that these were of purely academic interest. If an antrum were so small that it could not be perceived post mortem with the naked eye, then he thought he was justified in considering it as absent, or, if they preferred it, obliterated. The antrum on the healthy side was found to be very small, and the thickening of the tegmen tympani described in the diseased ear, would suggest that a similar thickening had occurred above the antrum. With regard to the point raised by Mr. Ballance, he would remind him that at the beginning of his remarks he had definitely stated that he would not go over the clinical features of the case owing to the very short time at his disposal. At first, the patient presented all the features of a cerebral lesion without, however, any localising symptoms, and ophthalmoscopic examination revealed no changes in the discs. After this, however, improvement occurred, and after opening into the attic this improvement continued until the evening before death. He then had the advantage of a consultation with a physician and surgeon, and it was agreed that still no localising signs or symptoms existed, but that if on the next day there were no improvement an exploratory operation would be desirable. Time did not permit him to go into all the points which led to this conclusion, as that would involve reading that portion of his paper which he had purposely omitted. Even had the exact state of matters been known, it is improbable that a fatal result could have been avoided, as there were three distinct points of infection: (1) over the tegmen tympani; (2) in the occipital lobe; (3) in the cerebellum.

Mr. R. H. PARRY read the notes of a *Case of Tinnitus and Vertigo Treated by Division of the Auditory Nerve*.

Mr. Parry's communication was reported in the August issue of this Journal.

Dr. KERR LOVE said as the patient happened to be under his care before he went to the Victoria Infirmary he took this opportunity of throwing any light he could on the matter. He did not know the patient was coming before the meeting that day, or he would have had some notes of what took place in the Royal Infirmary, but he recognised the man at once, and his recollection was sufficiently clear to remember that he saw him at first in the dispensary, and that after considerable discussion he was admitted to the hospital so that his case might be inquired into. The idea he had was that some improvement in his condition might be made by removing the stapes and entering the internal ear. The operation, he thought, was refused by the man because he (Dr. Love) would not hold out definite prospect of recovery. The man, however, seems to have welcomed any operation by Mr. Parry which promised a reasonable chance of cure. He would suggest that any attempt to relieve the tinnitus and giddiness in such a case should not be done in this way. He thought that it was a most undesirable procedure. He thought that the internal ear should be approached through the middle ear, and that no attempt should be made to deal with the auditory nerve in a case like this unless there be present intracranial complications. No attempt on any account should be made to attack the auditory nerve in this way.

Mr. MACLEOD YEARSLEY said that he would like to ask what was the original condition of the man's hearing. He did not think the meeting had been told anything regarding it. He would also like to ask Dr. Parry why he had not contented himself with going into the internal ear without opening the skull at all, and removing the cochlea and the semi-circular canals. To his mind there were very grave doubts indeed as to the advisability of such an operation as they had heard described.

Mr. BALLANCE said that they were all familiar with the tinnitus vertigo and vomiting which might occur when suppuration of the tympano-antral cavities extended into the petrous, and that the proper treatment was not division of the auditory nerve but ablation of the petrous disease. He thought that there were cases where there was no infective disease of the petrous in which the division of the auditory nerve would be the proper operation to carry out. This operation, he thought, should not be done by going through the petrous, but by opening the cerebellar fossa, displacing backwards the cerebellar hemisphere, and then dividing the auditory nerve with a hernia knife as it entered the internal auditory meatus. Experimentally the division of the auditory

nerve produces in the monkey, he said, instability in walking, while slow destruction of the auditory by a tumour did not produce such results. He thought, therefore, that patients would soon recover from any symptoms of difficulty in walking after section of the auditory. With regard to facio-accessory anastomosis, he had had one case with complete recovery of dissociated movement in the paralysed face, but theoretical considerations seemed to point to facio-hypoglossal anastomosis as the proper operation to perform.

The PRESIDENT expressed the opinion that in this case it would have been desirable to have first performed the radical mastoid operation, because, when this patient attended the Western Infirmary there was a suppurative middle-ear process, undoubtedly of a long-standing nature, and although it tended to dry up, under ordinary treatment, leaving a perforation, there was the possibility of the presence of cholesteatomatous masses in the antrum, which, by pressure, might account for the vertigo and the tinnitus. The President could not, however, quite agree with the complete condemnation of the operation expressed by Dr. Kerr Love because there were cases of violent and persistent tinnitus in which the operation of dividing the nerve might be justifiable experimental treatment; cases in which there had been no purulent affection of the ear and where the tinnitus had been utterly unbearable, and where there was good reason to believe that the lesion existed in the labyrinth and not in the intracranial cavity. In these circumstances if the surgeon believed the operation to be safe, and if all other treatment brought no relief, the division of the nerve might be tried as a last resource. But in such a case as this one, had the President's opinion been asked, he would have said, first examine by operation the spaces of the middle ear, the antrum, the cells, the attic—clear them out thoroughly if necessary; and also examine the labyrinth walls from the direction of the middle ear spaces and deal with any lesion which might be found there. If the results were negative, then the question of dividing the auditory nerve at the internal auditory meatus might be seriously considered.

Mr. RICHARD LAKE reported a *Case in which all the Semicircular Canals on one Side were removed for the Cure of Vertigo successfully.*

The paper was reported in the July issue of this Journal.

Mr. CHEATLE said he wished to give Mr. Lake his hearty congratulation on this most important case. It was, as far as he knew, the first operation carried out on the labyrinth apart from



suppuration with success. Mr. Cheatle mentioned that he had suggested opening the labyrinth for Ménière's disease many years ago (*Arch. of Otol.*, vol. xxvi.).

Dr. W. MILLIGAN said that he heartily joined in the congratulations accorded to Mr. Lake. He thought that there was a distinct field for operation in such cases. In the early part of last year he had operated in a similar case, and had removed the semicircular canals with complete success so far as the patient's vertiginous symptoms were concerned. The tinnitus had, however, not completely disappeared. The patient, owing to constant attacks of vertigo, was unable to follow his occupation, and in the circumstances he had considered operative interference justifiable. Since then he had operated upon two similar cases, one with success, the other without success.

Mr. LAKE stated, in reply, that the tinnitus was not influenced at all.

Dr. J. H. NICOLL read a paper on *The Indications for Operative Procedures upon the Lateral Sinus and Internal Jugular Vein, with illustrative Cases.*

This paper will be found on page 355 of the July issue.

The PRESIDENT thanked Dr. Nicoll for his suggestive paper, and referred to the importance of the question as to whether the internal jugular vein should, in these cases of septic thrombosis of the lateral sinus, be ligatured *before* or *after* operation on the mastoid and the sigmoid part of the lateral sinus. Dr. Nicoll's opinion on this matter was of great value as formed after very unusual experience.

The PRESIDENT at this stage expressed regret that the forenoon's work must come to an end in order that the members might be in time for the demonstration at the University. He added, however, that the remaining communications would be taken as read and be published in the *Transactions*.

Dr. A. BROWN KELLY showed *Cases of Insufficiency of the Palate, and its Relation to Affections of the Ear.*

Dr. BROWN KELLY said: The cases of insufficiency of the palate have been shown because of their rarity—not one having been reported in the United Kingdom so far as I know—and in order to point out the influence exercised by this malformation on the ears.

The boy presents a deep notch in the posterior edge of the hard palate, and the soft palate is drawn forward in consequence so that it cannot reach the posterior wall of the pharynx on phonation.

This case conforms to the view generally held regarding insufficiency of the palate, namely, that the fundamental cause is a shortening of the hard palate, and not of the soft palate.

In order to prove, however, that notching of the hard palate does not always give rise to insufficiency the second patient has been shown. This man is one of eleven cases I have met with in which there was notching of the hard palate but no insufficiency of the soft palate.

The girl's condition proves that insufficiency may exist although the hard palate is of normal length and contour, and the soft palate not shortened. In this case the chief place of elevation of the palate is not at the base of the uvula as usual, but close behind the posterior edge of the hard palate. This abnormality seems to me to be probably due to defective interlacing of the posterior portion of the levator palati with that of its fellow of the opposite side, hence the posterior part of the soft palate is but slightly raised.

I have had five cases of insufficiency of the palate, and in all of them the ears were, or had been, affected. In four of the patients there was more or less permanent deafness, and in one occasional deafness. Recurrent earache was complained of by three, and a history of otorrhœa was given by two. The examination of the ears showed the affection to be chronic middle-ear catarrh in three instances, Eustachian catarrh in one, and chronic suppurative otitis media in one.

Insufficiency of the palate therefore seems liable to be associated with affections of the ear. The manner in which the latter are produced is not clear, but two factors appear to me to be of importance in this connection: first, defective ventilation of the middle ear owing to the restricted action of the levator and tensor palati; second, extension of inflammation from the naso-pharynx, which, owing to its abnormal roominess and the patient's difficulty in clearing it of secretion, is apt to become the seat of chronic catarrh.

The PRESIDENT showed a *Case of Temporo-sphenoidal Abscess operated upon by Sir Wm. Macewen seventeen years ago. Interesting historically as one of the first cases of the kind.*

W. H—, a man aged twenty-seven. In January, 1887, when ten years of age, patient came under Dr. Barr's care, presenting the classical symptoms of right temporo-sphenoidal abscess supervening on a purulent discharge from the right ear of a year's duration. At the request of Dr. Barr, who knew of Barker's case occurring a few months before, Dr. Macewen trephined an inch

above the meatus, with a counter-opening at the roof of the meatus. A large temporo-sphenoidal abscess was evacuated, followed by complete recovery. He is now, seventeen years afterwards, in excellent health, both bodily and mentally, a brass-founder to trade, married, and has two children. The case was reported fully in the *Lancet* of March 26, 1887.

The PRESIDENT and Dr. J. H. NICOLL showed—(a) *Case of a man, aged thirty-four, who was operated upon for Cerebellar Abscess by Dr. Nicoll six years ago.* (b) *Case of a man, aged twenty-eight, suffering from a Sense of Pulsation in Left Ear, in which a Pulsating Bruit was heard through the Auscultation Tube, and was unrelieved by Ligature of Vessels.*

(a) T. B——, a man aged thirty-four. Six years ago Dr. Barr performed the radical mastoid operation on the left side, exposing the lateral sinus, which was healthy. A few days afterwards Dr. Nicoll opened the cranial cavity, first over the temporo-sphenoidal lobe, with negative result; then over the cerebellum, behind the sigmoid part of the lateral sinus, and an abscess was tapped in the cerebellar tissue half an inch from the cortex. Afterwards, on account of the continuance of discharge from the abscess cavity, an aperture was made in the cerebellar fossa in front of the sinus, through the posterior surface of the pars-petrosa with good results. The patient is now engaged as a packman, carrying heavy burdens sometimes fifteen miles in the course of a day. The case is fully reported in the *Transactions of the Glasgow Medico-Chirurgical Society*, vol. ii.

(b) W. S——, a man aged twenty-eight, had had constant beating, "like a pulsation," in left ear for several years, arising apparently from a severe blow upon the head inflicted with a large stone. By auscultation a distinct bruit, synchronous with the pulse, was heard in the ear. This was stopped by pressure on a particular spot behind the mastoid. The watch was heard in right  $\frac{4}{40}$ , in left  $\frac{17}{40}$ . Speech, however, was not heard so well in left as in right ear. The posterior auricular artery and the external carotid artery were ligatured about three months ago by Dr. Nicoll without effect upon the pulsation, so far as the patient's sensations were concerned. The bruit, however, is not now heard through the auscultation tube.

The PRESIDENT and Dr. JAMES GALBRAITH CONNAL showed two *Cases in which Large Exostoses were removed from the External Auditory Canal by the Post-auricular Route.*

J. S——, a man aged twenty-one, from whom a bony growth,

which filled the lumen of the meatus and compressed the walls, was removed by Dr. Barr from right meatus in December, 1902. After the dissection of the auricle and external auditory canal forward, the exostosis was removed from the back wall with mallet and chisel. Before the operation the watch was heard only on pressure, and a whisper was heard close to the ear. Now the watch is heard thirty-six inches from the ear, and a whisper the length of a moderately-sized room. The hearing of the opposite ear is defective. The bony growth was shown to the Society.

Dr. W. S. SYME showed the following patients:

1. *A Case of Radical Mastoid Operation in which no Antrum was found, the Antro-tympanic Passage being very narrow and ending abruptly in Sclerosed Bone.*

The patient was a male aged twenty. There had been purulent discharge from the left ear for ten years, which was unaffected by ordinary antiseptic treatment.

*Operation.*—The supra-meatal spine was well marked, but the suprumeatal triangle was not so clearly defined. In its place was a small pit, and the bone was otherwise rounded, and the mastoid sloped sharply to the meatus. On removing the bone, which was sclerosed, with the chisel, an opening was found from which, however, no purulent material escaped. The bur was then used, and it was seen that this opening led to the sinus, and through the thin shining plate of bone left by the bur the sinus could be plainly discerned close up to the posterior meatal wall. The bone was then cautiously removed by the bur nearer to the meatus and higher up to a depth of half an inch, when facial twitching indicated proximity to the Fallopian canal, but no antral cavity was found. The point of a Stacke's protector was then passed into the aditus and the bone removed over it. The passage was then seen to pass almost directly upwards, to be very narrow, and to end abruptly without expanding into an antral cavity.

The hearing had improved from watch = pressure before operation to watch =  $\frac{2}{10}$ .

2. *A Case of recent Radical Mastoid Operation, Left Ear, showing the Result of early Discontinuance of Packing.*

The patient was a male, aged sixteen.

*The Operation* was performed April 19, 1904, for purulent discharge of some years' standing, with granulations.

The antrum only was involved, the vertical cells being unaffected. The posterior wall of the cartilaginous meatus was split and the



posterior wound immediately closed. The cavity was then tightly packed through the meatus, and the meatal flaps thus pressed into position. On the twelfth day the stitches were removed and the bandage and dressing left off.

Light packing was continued for four days. Since that time the granulations had been kept down by spirit treatment, and four weeks and four days after the operation the cavity was almost completely epithelialised.

Dr. SYME thought that from the localisation of the disease this case was particularly suited to this method of after-treatment. Before operation, watch=P.; May 21, watch= $\frac{7}{10}$ .

Dr. R. FULLERTON showed the *Case of a Lad on whom the Radical Mastoid Operation had been performed Fifteen Months previously.*

At the operation the structures in the middle ear were found to be quite disorganised by a chronic suppuration, the bony tissue surrounding the antrum was to a great extent destroyed with exposure of the lateral sinus, while the antral cavity was filled by cholesteatomatous masses, granulations and pus. The after treatment consisted in packing with boracic powder and iodoform gauze through the meatus, and the surface of the cavity had become entirely lined with epithelium in eight weeks. When seen two months later the aural cavity was clean and dry. Cholesteatomatous concretions were now present, especially on the posterior portion of the cavity, and the general surface was moist. The case was shown with the object of drawing attention to this troublesome condition, which so frequently follows such operations, and of eliciting information as to whether it occurs more frequently in cases where cholesteatoma previously existed.

Dr. ALBERT A. GRAY showed *Specimens illustrating the Anatomy of the Internal Ear.*

The macroscopic specimens of the labyrinth were prepared by a method devised by himself, and showed that structure in its entirety. In the specimen stained with osmic acid the various nerves were seen running to their terminations in the cochlea, the maculae acusticae, and the cristae acusticae respectively. In one of these preparations a rudimentary ampulla was found in addition to the normal one.

Another preparation was shown in which the endolymph spaces had been injected with lampblack, and a third which showed the aquæducts of the vestibule and the cochlea.

Specimens of the auditory ossicles of the seal were also shown.

The microscopic specimens showed the cochlea and organ of Corti in certain mammals. In the section of the human cochlea the helicotrema was clearly seen. The organ of Corti of the mole showed the spiral termination of the nerve round the hair-cells in a way not seen in other animals. The section of the organ of Corti of the mouse was noticeable for the clearness with which the different elements of that structure could be seen.

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## PROCEEDINGS OF THE BELGIAN SOCIETY OF OTOLOGY, LARYNGOLOGY, AND RHINOLOGY.

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*The Annual Meeting held at Brussels on June 11 and 12, 1904.  
June 11 at the Hospital Saint-Pierre.*

*President, DR. CHEVAL.*

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### PRESENTATION OF ANATOMICAL SPECIMENS.

TRÉTRÔP (Antwerp): *Latent Abscess of the Cerebellum after the Radical Mastoid Operation.*

The patient, a young man, aged eighteen, had suffered from chronic purulent otitis for seven years. Two days after he was first seen severe pains came on in the mastoid region with puffiness along the jugular vein. The fundus oculi was normal. The radical operation was performed. The antrum contained pus, and the head of the malleus was carious; the lateral sinus was not thrombosed. The fever then went away, and the facial paralysis, which had existed for several days, disappeared.

The next day there was no fever; the facial paralysis had returned, but it diminished again after the wound was dressed. Four days later the patient had fever and headache, and the facial paralysis had returned. After the dressing the symptoms improved, and the facial nerve recovered its function. The same evening high fever, delirium, and vomiting set in, and the patient died in the course of the night.

At the autopsy the cerebrum and the meninges were found to be healthy, but in the cerebellum were two abscesses containing greenish pus. The facial paralysis was attributed to the pressure caused by the increased volume of the cerebellum.

DELSAUX (Brussels): *Cerebellar Abscess without External Signs.*

A man, aged twenty, the subject of old otorrhœa, with polypi, was seized with violent pains on the vertex, and in the left temporal

region. There was prostration; the pulse 60; the pupils equal. Nothing was observed in relation to the mastoid or the facial nerve. The temperature varied between 101° and 102° F. No examination of the fundus oculi was made, nor was lumbar puncture performed. The relatives declined operation. Some hours later the patient died in a convulsive seizure.

The autopsy demonstrated (1) the integrity of the cerebrum and the meninges, (2) the existence of a large abscess involving nearly the whole of the right lobe of the cerebellum.

The symptoms pointed to intra-cranial pressure, but the special signs of cerebellar abscess were absent.

DELSAUX: *Recurrent Cerebral Abscess.*

The patient was the subject of otorrhœa since infancy. His antrum was opened, and two years later the middle fossa was trephined for extra-dural abscess, and another operation was performed in a general hospital. For three years all troublesome symptoms disappeared, but the discharge from the ear persisted.

In February last an acute attack with fever, severe pains in the head, right facial paralysis, and dilatation of the corresponding pupil came on. The pulse was regular, the fundus oculi normal. Some days later the headache was more severe, and the fever higher. A complete mastoid operation was performed. There was a large opening in the squamous portion. Granulations of the dura covered a fistulous track from a cerebral abscess, which was drained. A cholesteatoma was removed from the tympanum.

The fever continued; the pulse was 80 to 88; the optic papillæ were normal. Lumbar puncture gave no indication. Ten days after the operation the patient died comatose.

*Autopsy.*—Dura mater thickened, adherent, and granular. An abscess was situated in the inferior surface of the cerebrum behind a cicatrix in the nervous tissue, the remains of an old abscess. This abscess communicated with the occipital cornu of the lateral ventricle.

DELSAUX: *Thrombophlebitis of the Cavernous Sinus consecutive to Purulent Otitis Media.*

This complication occurred in a child, aged thirteen, with old chronic otorrhœa, which infected the lateral sinus, and was propagated in spite of operation on the sinus and ligature of the jugular to the anterior sinuses of the dura mater. The thrombotic process passed along the inferior petrosal sinus. The diagnosis was made by the author, who operated on the inferior longitudinal sinus, the

sinus jugulare, and the mouth of the petrosal sinus. A large abscess was discovered under the muscles in the postero-lateral region of the neck. The temperature fell, but rose again at the end of a week, when a retro-ocular abscess and a retro-pharyngeal abscess developed. The thrombosis extended to the coronary sinus and to the left cavernous sinus, and to the central vein of the retina on that side. Death occurred by extension to the meninges.

The autopsy confirmed the diagnosis.

DELIE (Ypres) : *True Dental Cyst of the Maxillary Sinus.*

The author showed a true dentigerous cyst which he had removed from a girl, aged thirteen. The patient had never suffered any pain, but there was complete nasal obstruction on the side of the disease. The teeth were normal. Transillumination showed complete opacity. Puncture of the sinus gave exit to a liquid mixed with cholesterin. Delie trephined the sinus and removed a fleshy mass covered with a fibrous envelope enclosing a canine tooth.

MICROSCOPIC SPECIMENS AND PHOTOGRAPHS.

OXODI (Budapest) : Photographs of anatomical preparations of the nose and of operations on the nasal fossæ. Presented for him by the President.

SCHIFFERS (Liège) : Microscopic specimen of (1) a myxoma of the larynx ; (2) sarcoma of the tonsil ; (3) epithelioma of the larynx.

DELSAUX : Microscopic specimen of cancer of the larynx treated by radium. The action of the radium clearly consists in a fibrous condensation of the cells exposed to its action.

PRESENTATION OF INSTRUMENTS.

BROECKAERT (Ghent) : Instrument for injecting paraffin while cold.

LABARRE (Brussels) : A paraffin syringe.

DELSAUX : A contra-respirator for use after the removal of adenoids, in order to prevent mouth-breathing. The instrument consists of a plate of hard rubber modelled upon the teeth and gums for wearing inside the lips. In order to avoid accidents, an eyelet carries a tape which passes round the child's neck.

LENOIR (Brussels) : Cutting forceps for removing the nasal wall of the maxillary sinus.

LABARRE : A distributor of aseptic compresses.



DELSAUX : A portable aseptic case for treating patients at home.

CHEVAL : A flask syringe for injections of aseptic vaseline into the Eustachian tube.

*June 12 at the Hospital Saint-Pierre.*

#### CASES.

BAYER (Brussels) : (1) *Dental Cyst of the Left Superior Maxilla.*

The patient, aged eighteen, was operated on successfully by the method of von Bruns. The cyst contained two well-formed canine teeth, the milk tooth and the permanent canine.

(2) *Maxillary Cyst.*

A man, aged twenty-seven, who had a maxillary cyst of periosteal origin developed in the alveolus of the second superior left incisor. The cyst was freely opened and curetted.

(3) *A Young Girl with Hypertrophy of the Turbinals and Amenorrhœa.*

The author removed the anterior and posterior ends of the turbinals. The menses appeared directly after the operation.

HENNEBERT (Brussels) : *A Case of Para-dental Cyst.*

The cyst appeared two years after a fracture of the edge of the right superior median incisor, and pushed forward the upper lip. Its thin anterior wall covered the thick white lining membrane, which was not adherent to the bony cavity. It was enucleated without difficulty. The apex of the tooth was bare in the cavity. Histological examination showed an external fibrous layer, with a thick lining of epithelium chiefly of the pavement variety.

CAPART (Junior) (Brussels) : *Malignant Tumour of the Nasal Fossæ.*

A woman, aged forty-two, had a large ulcerated tumour of the right nasal fossa, producing severe hæmorrhages. It was completely removed by operation. The patient remained well after more than a year and a half.

BECO, L. (Liège) showed a patient, aged fifteen and a half, with a *Fibro-chondro-sarcoma of the Naso-pharynx extending into the Nose.*

CHEVAL showed a *Series of Cases of Total Laryngectomy.*

He prefers this operation to partial laryngectomy or to thyrotomy.

DELSAUX : *Eversion or Prolapse of the Ventricle of Morgagni.*

LABARRE (Brussels) : *Extrinsic Tumour of the Larynx treated by the Method of Mahu.*

Two months before, the patient had an ulcerated growth, having all the clinical characters of epithelioma, upon the external surface of the right aryepiglottic fold. Anti-syphilitic treatment produced no effect. Adrenalin was applied according to the method of Mahu, when the tumour underwent a rapid retrogression until it was hardly perceptible.

CAPART (Junior) : *Traumatism of the Trachea.*

The patient, aged sixty-four, had attempted to hang himself. Nine hours later emphysema invaded the thorax, the left upper limb, the neck and the face. Tracheotomy was performed under Schleich's anæsthesia. Suddenly in the course of the operation, the trachea became detached from the larynx, and it was necessary to make an extended incision in order to find it, and to fasten the upper end to the skin. The patient recovered. Later laryngofissure was performed in order to take away a cicatrix, and now the patient is without a tube and speaks easily.

GORIS (Brussels) : *Remote Results of Thyrotomy in Laryngeal Tuberculosis.*

The patient was cured several years ago of commencing tuberculosis of the larynx by thyrotomy. The result was excellent. In more advanced cases operated on in the same way the results were bad.

DELSAUX : *Two Cases of Abnormal Mobility of the Tongue.*

These patients could pass the tip of the tongue upwards behind the soft palate. The projection of the tongue forwards was also more marked than ordinary.

CAPART (Junior) : *A Case of Œsophageal Diverticulum.*

Ablation was performed easily.

GORIS : *Enormous Goitre removed in two sittings.*

DELSAUX showed a *Series of Ten Patients Operated on by the Radical Method for Chronic Otorrhœa with Resection of the Posterior Wall of the Meatus, and Immediate Suture of the Mastoid Wound.*

HENNEBERT (Brussels): *Lumbar Puncture in a Case of Labyrinthitis.*

A typical case of labyrinthitis with Menière's symptoms. Various modes of treatment having failed, the author performed lumbar puncture. After an improvement for ten days, the symptoms reappeared with their former intensity.

DE GREIFT (Antwerp): *Cured Brain Abscess.*

CHEVAL: *Two Cases of Intra-cranial Complications of Middle-ear Suppuration.*

One was a case of a large cerebral abscess cured by operation. The second presented paralysis of the external rectus of the right eye, slight fever and pain in the right side of the head, following influenza with otitis. Then an abscess projected into the nasopharynx, and extended down behind the posterior pillar. After the evacuation of the pus recovery was rapid.

LABARRE: *A Case of Hemiatrophy of the Face successfully treated by Paraffin Injections.*

LENOIR (Brussels): *A Case of Symmetrical Poly-exostoses of the Face.*

#### COMMUNICATIONS.

TRÉTRÔP: *Personal Results of the Treatment of Deafness by Babinski's Method.*

The author had some very encouraging results.

NATIER (Paris): *Deafness: Its Diagnosis and Treatment. Re-education of the Ear by means of Acoustic Exercises by Tuning Forks.*

TRÉTRÔP: *A Case of Concomitant Paralysis of the Facial and the Auditory Nerves.*

A girl, aged nineteen, had polyneuritis affecting the right half of the body, the facial and the acoustic nerves. When she came under the care of the author, there remained only right facial paralysis and total deafness on the same side. The facial paralysis got well under electrical treatment in four or five weeks. Treatment of the ear produced only a slight improvement after several months. The author had recourse to lumbar puncture, and drew off 13 ccm. of liquid. Post-operative reaction was severe during

a week, at the end of which there was a general improvement and the hearing became considerably better.

DE GREIFT: *Three Cases of Cerebral Abscess of Otitic Origin.*

(1) A child, aged twelve years, with otorrhœa of four years' standing, was attacked with sudden pains in the ear, soon accompanied by fever, and, after some days, intellectual disturbance. At the operation caries of the roof of the tympanum was found, also a large cerebral abscess, which was drained. Some days later a second abscess was opened. Recovery was perfect.

(2) A man, aged thirty-one years, with chronic purulent otitis, was attacked with violent pains in the ear and the head, vertigo and vomiting. At the radical operation a large cholesteatoma was found, and also caries of the antro-tympanic roof. On the tenth day facial paralysis appeared, and then the temperature rose with a return of the former symptoms. Sudden aggravation, with aphasia. The squamous portion was trephined, and a large cerebral abscess opened. Gangrene of the brain supervened, and the patient died comatose after repeated attacks of convulsions.

(3) In a child, aged thirteen years, with old neglected purulent otitis. Facial paralysis appeared with fever and pain. A large abscess was eventually found in the brain, which the author believed communicated with the lateral ventricle. A hernia cerebri formed. Gradual improvement and eventual recovery.

LOMBARD, E. (Paris): *Thrombo-phlebitis of the Cavernous Sinus of Otitic Origin.*

The author showed the petrous bone. The patient presented himself on account of facial neuralgia and pains in the left ear. Paracentesis, and later antrotomy, gave no relief. An acute meningitis carried off the patient.

At the autopsy, besides the usual signs of purulent meningitis, the cavernous sinus was found to be thrombosed and suppurating. The infection was propagated from the antrum by means of large aberrant cells filled with pus, hollowed in the posterior surface of the petrous bone.

*At the Institut Solvay.*

VAN GEHUCHTEN (Louvain): *Upon the Acoustic Channels.*

ZIEM (Danzig): *Upon the Physiology of the Inferior Turbinal Body.*



BROECKAERT: *Vegetating Rhinitis: A Pathological and Bacteriological Study.*

This affection is chiefly observed in the posterior parts of the nasal fossæ; it greatly resembles lupus or tuberculosis. The author finds that the growths are purely inflammatory, probably due to staphylococcus.

NOQUET (Lille): *Tumour of the Lower Part of the Septum Nasi.*

BECO: *Congenital Salivary Cyst of the Glossopharyngeal Furrow, the size of a large nut.*

In an infant, aged one month. Respiratory trouble rapidly became worse, and at the time of the operation the patient was moribund. Ablation with scissors was performed, and a quantity of yellowish liquid flowed out. Artificial respiration was followed by complete recovery.

HENNEBERT: *Remarks on Transillumination.*

LUC (Paris): *Concerning the Mechanism of Acute Intra-cranial Infection following the Operation of Opening and Disinfecting the Frontal Sinus in Cases of Chronic Frontal Sinusitis.*

TRÉTRÔP: *Rapid Cure of Severe Lupus of the Nose and of Circumscribed Lupus of the Auricle by Curetting and topical applications.*

The principle of treatment consists in (1) taking away the new growths, which swarm with parasites, and (2) rendering the locality sterile.

Under local anæsthesia, or in some cases under chloroform, the nodules are thoroughly removed with the curette, and after the hæmorrhage has been checked by hydrogen peroxide solution the whole wound is painted with a 40 per cent. solution of formalin, diluted with nine parts of distilled water, which is repeated three times a day. The crusts must be carefully removed before each application. If it is necessary to stop the formalin on account of the reaction, lactic acid can be applied in the interval.

When the nodules have disappeared a mild antiseptic ointment should be used.

CASTEX (Paris): *The Medico-legal Estimation of Damages in Accidents to the Larynx.*

The author gave notes upon some reports.

BROECKAERT : *Resection of the Recurrent Nerve and of the Cervical Sympathetic Trunk in the Monkey and the Rabbit.*

By means of a series of triple-stained microscopic specimens the author showed the alterations produced by section of these nerves. He demonstrated clearly that section of the recurrent nerve produced paralysis of the external arytenoid muscle, but that it was without effect upon the posticus.

MASSIER (Nice) : *Laryngeal Stenosis of Tuberculous Origin, treated by Progressive Dilatation.*

After having performed thyrotomy for laryngeal stenosis the author found that it was impossible for the patient to leave off the tracheotomy tube. Although he had introduced successively Schroetter's tubes from No. 1 to No. 11 during a period of eight months, the glottis only remained patent for a few seconds and quickly closed again. The closure was produced by the two halves of the thyroid cartilage falling together.

MASSIER : *Sudden Death from Laryngeal Spasm in a Case of Tuberculosis of the Larynx of small extent.*

A woman, aged forty, sought relief for transitory dysphonia with attacks of dyspnoea and of spasm of the heart.

The only lesion in the larynx was an ulcer upon the upper part of the left vocal cord extending into the ventricle. Several times the patient had true laryngeal spasms with momentary syncope and intense præcordial pain. She died during an attack.

TRÉTRÔP : *Aphonia of Eight Months' duration from a Polypus of the Left Vocal Cord. Removal. Cure.*

In a woman aged sixty-two, with total loss of voice of eight months' duration, which had resisted all treatment, the author found a polypus the size of a pea upon the left vocal cord close to the commissure. He removed it with Krause's forceps, and the patient was able to speak at once.

It was a polycystic tumour covered with pavement epithelium; the cavities were lined with columnar epithelium. Loose connective tissue lay between, with dilated blood-vessels and extravasations.

DE STELLA (Ghent) : *Rôle of the Toxins and Antitoxins of Diphtheria in the Organism.*

An account of some experiments made by the author.

SCHIFFERS: *Retropharyngeal Glandular Abscess and Diphtheria.*

An attempt to explain the pathogeny of certain cases of suppuration of glands in the back of the pharynx by the presence of a microbe of variable nature. The author also relates a case of diphtheria followed by a retropharyngeal abscess on the right side in a child four years old, produced either by the Klebs-Loeffler bacillus or by a streptococcus.

HENNEBERT (Brussels): *A Case of Epithelioma of the Tongue.*

When the patient was seen operation was out of the question. The left border of the tongue was deeply excavated, with sloughs at the bottom, and the anterior pillar presented a large growth. The glands behind the angle of the jaw were much involved. To relieve pain and to diminish the fœtor of the breath a complex treatment was adopted. Lotions of formalin 1 per cent. to 3 per cent. were the chief means used. Besides this the author used sprays of peroxide of hydrogen and phenosaly, and insufflations of orthoform, borax, cocain, and morphia, upon the sloughing and granulating surfaces. Little by little the loss of substance of the tongue filled up, and scar tissue took its place, the anterior pillar resumed its normal aspect, and for nearly nine months the patient, who took food well and suffered no pain, thought himself cured. At the end of this interval the base of the tongue was gradually destroyed by ulceration, the new growth of the anterior pillar reappeared, as well as the pains, fœtor of breath and hæmorrhages, and the patient died of cachexia.

CHICHELE NOURSE.

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## Abstracts.

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### NOSE AND NASO-PHARYNX.

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Réthi.—*Nasal Reflexes.* "Monatsschr. f. Ohrenheilk.," January, 1904.

Réthi removed the anterior half of the left middle turbinal from a man suffering from empyema of the left anterior and middle ethmoid cells, then put a tampon into the nose. The other accessory cavities were free of pus. Two hours later the patient noticed that he had to some extent lost control of the right leg, that it felt heavy, and that sensation in it was less certain than in the other. His gait was uncertain and dragging. These conditions were present when patient returned to

Réthi next day. He removed the tampon, whereupon all the symptoms disappeared.

In another case Réthi removed a hypertrophy from the left inferior turbinal, and packed the nose. Next day patient reported that her gait had become unsteady, she had felt giddy, and had staggered in walking. There was no dragging and no weakness in the legs. On removal of the tampon the symptoms disappeared.

In a third case, a greatly hypertrophied middle turbinal was removed, and a tampon put into the nose. The patient on his way home became so giddy that he had to get help. The giddiness persisted whether he was standing, sitting, or lying. No paresis. On removal of the tampon the giddiness ceased in a few minutes.

The symptoms in these cases may have been reflex, but on the other hand, considering the intimate relations between the nasal lymphatics and the subdural and subarachnoid spaces it seems very probable that they may have been pressure symptoms. Réthi, however, is not sure how far this mechanical explanation may be applied to other so-called reflexes of nasal origin.

Arthur J. Hutchison.

Coolidge, A.—*Deviation of the Nasal Septum* "Boston Medical and Surgical Journal," May 5, 1904.

The author looks upon deviations and spurs of the nasal septum as largely due to the natural asymmetry of the skull acting upon a thin osseo-cartilaginous plate, held firmly in a bony frame and trying to grow forward. Short accounts of five cases are given. Coolidge adapts his method of operation to each individual case.

Macleod Yearsley.

Emerson, F. P.—*Local Conditions in the Respiratory Tract modified by General Functional or Organic Disease*. "Boston Medical and Surgical Journal," May 12, 1904.

The author pleads for a wider view among laryngologists and rhinologists. He points out that everyone who has any experience of nasal operations recognises the difference in reaction between the patient who leads an active out-of-door life and the one of sedentary habits. Similarly the man or woman with chronic constipation, indigestion, rheumatism, or gout, will show an individual reaction that is not represented by the amount of trauma or the virulence of the infective organism. Five cases are given to emphasise the importance of studying the patient as a whole, so that when a local condition has been remedied general medicinal measures may be carried out in conjunction with the family physician to prevent a recurrence.

Macleod Yearsley.

Dunbar, Roy.—*A Plea for a More Thorough Examination and Rational Treatment of Nose and Throat Diseases*. "The Charlotte Medical Journal," June, 1904.

The author deprecates the "treatments habit" in which patients suffer from too much local treatment for nasal and throat diseases. He takes the symptoms of pain, sneezing, stenosis, and discharge *seriatim*, discusses the pathological conditions they may represent, and shows how easy it would be to treat them erroneously. The great importance of looking at the patient as a whole, and not as a mere throat and nose, is strongly insisted upon.

Macleod Yearsley.



**Stella, H. de** (de Gaud).—*Endo-nasal Injections of Paraffin in the Treatment of Ozaena*. "Archives de Laryngologie, etc.," May-June, 1904.

The author uses paraffin with a melting point about 112° F., and a Broeckaert's syringe rather longer and narrower than usual so as not to occlude the operation field. The syringe is filled with the melted wax and laid in water heated to 150° F., and after the inferior turbinate is cocaineised, the wax is slowly injected about the middle of the turbinate is both posterior halves of the inferior turbinates are done at one sitting; the anterior halves are done later. It is advisable to inject small quantities repeatedly rather than a large quantity at one sitting, as there is sometimes considerable reaction and pain, but the author has never had any phlebitis or embolism or any other serious result.

In a series of forty cases he draws the following conclusions:—In early cases and in simple atrophic rhinitis the cure is complete; in bad cases where the bone and middle turbinate are involved the condition is so improved that the patient's friends cannot detect any odour.

Anthony McCall.

## LARYNX AND TRACHEA.

**Castex** (Paris).—*Technical Details of Laryngotomy*. "Archives de Laryngologie, etc.," July-August, 1904.

Castex holds that the use of the tracheotomy tube is a great source of infection and irritation, and that it can be dispensed with. He uses chloroform with the patient's head in a dependent position, so as to leave the operation field free from saliva; the thyroid cartilage, the thyro-hyoid and the thyro-cricoid membranes are divided in the usual way, and the tumour removed by the thermo- or galvano-cautery. He states he gets quite good coaptation of the divided cartilage by passing the sutures through the soft parts.

The author admits that it is sometimes necessary to use a canula, and this may have to be done later. Moure, in criticising these statements, pointed out that Castex's method may answer for foreign bodies, but in his experience the use of a tracheotomy tube has had no unfavourable results, and does not think the saliva so very infectious. He also always sutures the thyroid with catgut.

Anthony McCall.

**Moure** (Bordeaux).—*Remarks on Thyrotomy*. "Rev. Hebdom. de Laryngol.," etc., June 4, 1904.

The author recommends thyrotomy in cases of foreign bodies in the larynx, in early cases of endo-laryngeal malignant disease, and in cases of benign tumours which cannot be removed by endo-laryngeal methods, or which tend to recur locally, such as papillomata. In the case of foreign bodies and malignant disease he closes the wound immediately, but in the case of papillomata and innocent growth, which tend to recur, he inserts a tracheotomy tube and leaves it in for some time in order to give rest to the larynx. Illustrative cases are recorded.

Albert A. Gray.

**Jacques** (Nancy).—*Two Clinical Experiences in Laryngology*. "Rev. Hebdom. de Laryngol.," etc., June 25, 1904.

Reports of two cases. The first was that of a child aged five and a half years, in which laryngotomy was performed in order to remove a foreign body from the larynx. The case did well.

The second case was that of a man in whom bilateral ankylosis of the crico-arytenoid articulation had occurred as the result of wearing an ill-fitting tracheotomy tube for many years.

Albert A. Gray.

**Hinsberg.**—*The Treatment of Stenosis of the Larynx and Trachea by means of the Mickulicz Glass Canula.* "Wissenschaftliche Mittheilungen Arztliche Rundschau," August, 1904.

The great advantage of this canula is that it is made of glass. The secretion from the wound does not cause corrosion nor adhere so firmly to the smooth surface as is the case when metal or horn is the material of which the canula is made. A metal canula must also be changed at least once daily, whereas the glass tube can be left *in situ* for weeks.

When the stenosis is produced by kinking of the hinder wall of the trachea above the seat of the tracheotomy canula the Mickulicz glass canula is excellent. It is so inserted that its upper end is under the glottis, and therefore does not interfere with the action of the vocal cords.

Hinsberg strongly recommends that the glass handle of the canula be hollow, so that an air channel is provided should edema of the glottis or other complication in the upper part of the trachea arise.

A. Westerman.

## EAR.

**Koller, Carl.**—*Scarlatinal Panotitis; exfoliation of a Portion of the Labyrinth; Radical Operation.* "Med. Record," January 30, 1904.

The patient, a female child aged four, was taken suddenly ill with vomiting and fever, the vomiting lasting three days. The scarlatinal rash rapidly developed, and this was followed a few days afterwards by diphtheria. Upon the eighth day of the disease the child complained of pain in the ears and deafness. This was soon followed by profuse discharge. When the child got up out of bed at the end of four weeks she was noticed to stagger. Two months after the onset of her illness she was admitted to hospital. Large perforations were found to be present, and both tympanic cavities were full of granulations. Upon the left side, bare bone could be felt with a probe. A diagnosis of panotitis with necrosis of the labyrinth was made, and operation advised. The left antrum was found full of pus and granulations, as was also the attic. Upon the medial wall of the attic a loose sequestrum was detached, and found to consist of the superior and external ampullæ and adjoining parts of the superior and external semicircular canals. Here the small sequestrum, consisting of a portion of the annulus tympanicus, was also removed. The patient made an uninterrupted recovery, but without any return in her hearing-power. The serious effects of scarlatinal diphtheria upon the organ of hearing are detailed by the author, and the relation of this disease to deaf-mutism is discussed.

W. Milligan.

**Veis.**—*The Prophylaxis of Acute Otitis Media.* "Monatsschr. f. Ohrenheilk.," February, 1904.

Most cases of acute otitis media are caused by the unintentional performance of Valsalva's experiment, either in blowing the nose or in sneezing. In text-books of otology instructions are generally given to close one side of the nose, leaving the other quite freely open when blowing the nose. This the author considers insufficient precaution, and

advises that all people be taught to blow their noses with both sides freely open. After a little practice in this new method of nose-blowing, quite satisfactory results are obtained, and the most fruitful source of acute middle ear inflammations is cut off. *Arthur J. Hutchison.*

**Schulze, Walter.**—*Cases of Mistaken Diagnosis in Aural Surgery.* "Archiv für Ohrenheilkunde," February, 1904.

The author describes two cases where the clinical symptoms pointed to an otitic intracranial lesion, and yet operation and *post-mortem* examination proved the contrary.

The first case was a woman with a long-standing left-sided otorrhœa who, eight days before admission, had pain in the ear, severe headache, vomiting, and increasing attacks of giddiness. The membrana tympani was completely destroyed with a large fistula leading into the attic. There was pain on pressure over the mastoid process and upper cervical vertebræ and on percussion over the whole head, most marked over the left side. The urine contained a trace of albumen. There was no optic neuritis.

Increasing drowsiness, paralysis of the right arm, partial aphasia and pyrexia of  $101-102^{\circ}$ , called for the complete mastoid operation and exploration of the temporosphenoidal lobe and cerebellum. The antrum and mastoid cells contained cholesteatomatous debris, the dura mater was hyperæmic, but no abscess was discovered.

The autopsy, next day, showed congestion of the brain and its meninges, œdema of the lungs, arteriosclerosis, and chronic interstitial nephritis.

It was apparently a case of uræmia, where the clinical picture, owing to the simultaneous onset of uræmic coma with an exacerbation of the chronic mastoid disease, simulated an inflammatory affection of the brain and its meninges.

The second case was a boy with a left-sided otorrhœa for two years.

Three days before admission he had sudden pain in the ear, with rigors. He lay on his back with retraction of the neck and marked lordosis. The wrists and arms were flexed. There was general hyperæsthenia excepting the right arm, which, together with the right leg, was parietic. The patellar reflexes were absent. There was partial aphasia. The optic fundi were normal. Lumbar puncture gave a negative result. The face and arms twitched spasmodically. A soft, doughy, inflammatory swelling extended from behind the ear down into the neck tissues. Pyrexia reached  $102^{\circ}$ .

The complete mastoid operation was performed and the lateral sinus freely exposed and found covered with granulations. The sinus was opened, found patent, and plugged. The left temporosphenoidal lobe was then explored with negative result.

Autopsy, next day, showed general congestion of the brain, but the meninges and sinuses were healthy; there was no intracranial abscess. Pus was found in the infiltrated neck tissue. Before operation lateral sinus thrombosis was diagnosed. On finding it patent the negative lumbar puncture, the paresis of the right arm and leg, together with incomplete aphasia, etc., suggested an extradural or cerebral abscess rather than meningitis.

The author suggests that death was due to "toxæmia," due to absorption from the wall of the lateral sinus, and possibly also from the abscess in the neck, and explains the cerebral symptoms by the possibility



of the left side being the first part to be infected, owing to its contiguity with the primary focus. *Hunter Tod.*

**F. Grossmann.**—*Sinus Thrombosis of Tuberculous Origin.* "Archiv für Ohrenheilkunde," February, 1904.

A child aged five, having had a right-sided otorrhœa and enlargement of the cervical glands for over a year, with a swelling behind the ear for six weeks, underwent the complete mastoid operation.

The antrum and mastoid cells contained pale granulations, and the bone was carious.

Soft caseating material surrounded the lateral sinus, in which there was a large fistula at the tip of the mastoid process. Similar caseating masses plugged the sinus below the fistula; above it the wall of the sinus seemed adherent, and the sinus to be full of blood. Four days later symptoms of tubercular meningitis were confirmed by finding tubercle bacilli in the cerebro-spinal fluid taken from a lumbar puncture.

Autopsy, two days later, showed general miliary tuberculosis, with an old tubercular lesion at the apex of the left lung. The lateral sinus was filled with caseating masses as far as the torcular herophili. The author gives a very good micro-photograph of the sinus, in which giant cells and a few tubercle bacilli can be seen. He emphasises the fact that the tunica intima of the vessel was chiefly affected.

He does not consider the thrombosis of the lateral sinus was due to the general tuberculous infection, and doubts whether the involvement of the sinus with tubercle produced the miliary tuberculosis. The old tubercular lesion of the lung was probably the primary one; infection then spread to the mastoid through the Eustachian tube, and the outer wall of the sinus became infected. Thrombosis occurred and then a fistula. The fact that at the time of operation the sinus above the fistula seemed full of blood and yet five days later, at the autopsy, was found thrombosed, nearly to the torcular, by tubercular changes which had chiefly involved the tunica intima, is regarded by the author as a conclusive proof that the tuberculous infection spread to the sinus from without, and that the pathological change in a vessel infected by tubercle is an "endophlebitis tuberculosa proliferans." *Hunter Tod.*

**Heinrich Halasz.**—*Removal of a Foreign Body from the External Meatus by means of Hydrogen Peroxide.* "Archiv für Ohrenheilkunde," February, 1904.

After many attempts to remove a bean which had remained two weeks in a boy's ear and had caused suppuration and partial occlusion of the meatus, the author, in order to cleanse the ear prior to performing a post-aural operation, filled the meatus with liquor hydrogen peroxide. The bean was soon dislodged. The author suggests that the force of the gas generated by the decomposition of the hydrogen peroxide drove out the foreign body. *Hunter Tod.*

**Segura, Eliseo V.**—*On a Case of Double Bezold's Mastoiditis; Operation; Recovery.* "Annales des Maladies de l'Oreille du Larynx du nez et du Pharynx," February, 1904.

On April 8, 1902, a man aged sixty-five presented himself at the Hospital of San Rogue, complaining of a painful swelling of the left



superior lateral side of the neck, rendering rotation of the head difficult. This condition was consecutive to influenza. There was nothing of note about his history.

Examination revealed a marked swelling at the level of the insertion of the sterno-mastoid, passing a little downward in the direction of the muscle, invading the superior part of the mastoid region, and ending immediately below the summit of the mastoid process. Pain on pressure was experienced at the antral level, intolerable over the apex of the mastoid and adjacent portion of the sterno-mastoid. Otoscopic examination showed a distinct sagging of the postero-superior wall of the meatus, and that part of the membrana tympani which could be observed was injected and thickened; there was no pus present, and patient stated he had never noticed any; also that he had always been free from pain, only having complained of slight discomfort in the ear at the outset of the trouble. Notwithstanding the integrity of the middle ear, from the local nature of the affection, the fact that it was not dependent upon glandular inflammation, that the parotid was normal, the general trend of events, and lastly, the age of the patient, the author considered the possibility of Bezold's mastoiditis.

Warm fomentations were applied, and the patient was kept under close observation. From April 9 to 10 the man's condition remained stationary. His temperature scarcely reached  $37.6^{\circ}\text{C.}$ , but there was slight increase of the swelling and more pain.

April 11. Intense headache was complained of, preventing sleep; local conditions the same; temperature  $37.6^{\circ}\text{C.}$ ; neither vomiting, nor vertigo; urine free from albumen.

April 12. As headache increased and became continuous, temperature  $38^{\circ}\text{C.}$ , and general condition not so good, an operation was decided upon. A retro-auricular incision was made from the base of the mastoid as far as the insertion of the sterno-mastoid. On laying bare the bone, the cortex appeared vascularized, but there were no obvious points of osteitis. The antrum, after it had been opened with chisel and mallet, was found, with the mastoid process, to have been hollowed into one extensive cavity filled with pus, and a perforation was discovered on the inner wall, by which the inflammatory process had tracked into the digastric fossa. Having reached this situation, the pus passed in two directions, downwards and backwards, thus forming a bifurcated abscess. In the course of the operation, which was done radically, the lateral sinus was found exposed, as well as a small portion of the dura mater on a level with the middle cerebral fossa. The post-operative cavity was carefully curetted, tamponned with iodoform gauze, and left open.

April 13. Temperature  $37.3^{\circ}\text{C.}$ , headache practically disappeared, and general state good. April 15. Wound dressed, satisfactory.

All went well till April 23, when patient was seized with shivers and headache. Temperature  $39^{\circ}\text{C.}$  The edges of the wound were swollen and red, but the aspect of the cavity was healthy. At this time a grave intra-cranial lesion was suspected, but was negatived by an examination. The next day erysipelas was diagnosed; this ran a favourable course, and did not influence the patient's condition more than protracting somewhat the healing of the retro-auricular wound, which was not completed till two months after the operation.

A few days before leaving the hospital, cured, patient was seized with an acute naso-pharyngeal catarrh, which rapidly extended to the right tympanum, producing an acute purulent inflammation.

June 15. Patient had pain in ear, extending to the mastoid process. A free paracentesis was performed. June 17. Abundant flow of pus;

mastoid process painful; headache; anorexia. June 19. Tissues over mastoid were swollen. June 20. Tympanum almost dry; meatus congested, but contour normal; swelling over mastoid increased, especially at tip; very painful on pressure. June 21. Surgical intervention was decided on. A similar incision to that on the left side was made, cortex exposed and removed. Abundance of pus flowed from a capacious cavity. On probing, an osseous perforation was made out on its internal wall, through which pus had already escaped, and commenced to infiltrate the sheath of the sterno-mastoid. The mastoid was totally resected, parts curetted and dressed with iodoform gauze, leaving wound open. June 24. Dressings changed; wound healthy; general state good; temperature  $37.3^{\circ}$  C. June 26. Drum dry; small tympanic perforation; wound satisfactory. The dressings were subsequently changed every two or three days, and patient made an uninterrupted recovery, far more rapidly than in the case of the other side. When he left hospital bilateral audition was good.

The author remarks that Bezold's mastoiditis is usually a complication of acute purulent tympanic inflammation, and that the bone is involved early in these cases. The extensive destruction of bone met with is what one would expect as a result of active inflammation in pneumatic tissue. The case of the right side in his patient conformed to this type. On the left side there had never been any suppuration of the drum, and the writer considers that the infection reached the mastoid process *via* the Eustachian tube and tympanum, but without causing trouble in the latter, which he points out is an exception.

To explain this unusual course of things he advances two hypotheses: either the tympanum was divided into two by a complete partition which isolated the superior part from the inferior, or that from the very first there was a complete obliteration of the aditus established. The first condition of things is generally the result of adhesions which would invariably be accompanied by profound derangement of audition, a trouble from which the patient was singularly free. The second hypothesis the author considers the true one. The infection passed directly from the tube to the antrum without tangibly involving the middle ear. The two latter cavities were early shut off by occlusion of the aditus ad antrum, and the septic germs played their part exclusively in the mastoid process. The writer observes how great an importance should be attached to the structure of the mastoid process in old people, as a contributory factor in the production of these abscesses. Such mastoids are essentially pneumatic, the cells being large at the apex. Their external cortex is thick and the internal very thin.

H. Clayton Fox.

Zur-Mühlen, A. V. (Riga).—*Two Cases of Aneurysm of the Arteria Carotis Cerebri*. "Arch. of Otol.," vol. xxxii, No. 5.

The first was in a middle-aged woman whose children showed evidence of hereditary lues. The symptom complained of was a ringing in the right ear relieved by compressing the side of the neck. There was a history of a fall six months previously with injury to the head and unconsciousness of one hour's duration. A systolic murmur of uniform intensity was heard on auscultation over the whole head. There was a temporary anosmia, and this led the writer to localise the aneurysm as at the branching of the carotid into the anterior and middle cerebral arteries.

The second was marked by pronounced exophthalmos, and was diagnosed as "rupture of an aneurysm of the carotid into the cavernous sinus." There was a beating tinnitus and nerve-deafness greater for

deep than for high tones. Ligature of the carotid effected much improvement. The writer thinks such aneurysms commoner than is supposed.

Dundas Grant.

**Bezold** (Munich).—*General Sepsis in Middle-ear Suppurations with a Central Perforation of the Drum.* "Arch. of Otol.," vol. xxxii, No. 5.

This is related as occurring in three cases, two fatal, in which there was neither cholesteatoma nor caries, and in which the perforation in the drum was not peripheral, but central, the situation considered by Bezold to be the most harmless. All were cases of acute exacerbation in long-standing chronic suppuration. The micro-organisms in all three were the *Streptococcus pyogenes* and small rod-shaped bacteria like the influenza bacillus. In the first (fatal) there was a thrombo-phlebitis of the internal jugular vein and a parietal thrombus in the bulb, though the sigmoid sinus contained liquid blood. There was exceedingly little change in the tympanum. In the second case, also fatal, there was pus between the dura and bone over the tegmen, and several minute coagula on the inner surface of the neighbouring parts of the lateral sinus, the wall being reddened and infiltrated with blood. The bulb was occluded by a fresh coagulum. Death in both cases seemed explainable only by extreme virulence of the infective agent. In the third case there was early operation on the mastoid. There was infiltration of the lymphatic glands, the mastoid cells were few and small, and contained a fibrinous exudation and pus. The antrum was free from pus. The patient was feverish for two weeks after the operation, but then rapidly recovered.

Dundas Grant.

**Le Beuf and Joachim.**—*A Case of Typhoid Fever and Pneumonia, with Ear Complications as a Sequela of being Buried Alive; Recovery.* "New Orleans Medical and Surgical Journal," May, 1904.

The patient was a Frenchwoman, aged twenty years, a circus performer. She gave a long history of various illnesses, including yellow fever, pneumonia, measles, mumps, scarlet fever, diphtheria, and acute rheumatism. Recently she had been acting as a hypnotic subject. Two years before she had been hypnotised, placed in a coffin, and lowered into a tank of water for a week. Her last feat had been to be buried, whilst in the hypnotic state, in a grave 6 ft. deep for several days. This was followed by enteric fever and pneumonia. Pain in the left ear occurred, followed by rupture of the drum and a free flow of pus. Three days later the right ear became similarly affected. She recovered slowly.

Macleod Yearsley.

**Chalupecky.**—*Colour-hearing.* "Wiener Klinische Rundschau," May 22—29, 1904.

Chalupecky has written a series of articles on this form of so-called double sensation.

Double sensation—sometimes spoken of as secondary sensation—is that sensation which irritation of one special sense organ brings forth in another sense area simultaneously to that produced in its own area.

Of such sensation, sometimes called photismen or phonismen, quite a number have been observed.

(a) Sound photismen—colour image by sound perception.

(b) Light photismen—sound conception by light sensation.



- (c) Smell photismen—colour image by smell sensation.
- (d) Taste photismen—colour image by taste sensation.
- (e) Cutaneous sensibility photismen—colour image by pain, temperature, or touch sensation.
- (f) Form photismen—colour image and light perception by seeing of forms.

The remainder of the paper, having largely to do with individual cases, is unsuitable for a short abstract.

A. Westerman.

**Nacht.**—*The Therapeutic use of Hydrogen Peroxide.* "Arztliche Rundschau," June 25, 1904.

In the above article the value of hydrogen peroxide in the treatment of ear diseases is discussed.

First used by Politzer and Bettmann in 1885, its value has increased with time. Weak solutions can be used to soften hard masses of cerumen.

Its main use, however, is in the treatment of middle-ear suppurations. In the form of drops it is a safe remedy in the hands of the patient. To cleanse the ear and relieve pressure symptoms its use is employed by most specialists and many general practitioners.

Two useful prescriptions are given:

Hydrogen peroxid. puriss.	2·0
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Aq. dist.	28·0
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The drops, lukewarm, to be instilled in the ear and left ten minutes.

Hydrogen peroxid. puriss.	1·2
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Aq. dist.	18·8
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Spir vini rect.	20·0
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The drops to be instilled in the ear for five minutes daily.

It can be used to destroy fresh granulations and is also a very useful hæmostatic in operations for the removal of the ossicles.

A. Westerman.

**Mignon** (Nice).—*Spontaneous Othæmatoma in a Child.* "Rev. Hebdom. de Laryngol.," etc., June 11, 1904.

The author records a case in a child, aged nine years, and remarks upon its rarity at that age. The differential diagnosis from cyst was made by puncture.

Albert A. Gray.

**Bonain** (Brest).—*Notes on Two Cases of Suppurative Middle-Ear Disease, with Endo-cranial Complications.* "Rev. Hebdom. de Laryngol.," June 18, 1904.

The first case was that of a patient upon whom the ordinary radical mastoid operation was performed, the lateral sinus being laid bare, but found apparently healthy. Facial paralysis supervened, but otherwise the patient did well, and eight weeks later the cavity was nearly dry. As the paralysis remained, electricity was applied to ascertain the condition of the facial nerve. It was found that partial degeneration had taken place. The following morning the patient was found in a comatose condition, and covered with food which he had vomited during the night. A few hours later he recovered consciousness. Meningeal hæmorrhage was diagnosed. The following night respiration suddenly ceased and the patient died.



The second case was that of a localised purulent meningitis on the left side, while the right ear was the diseased one, the left being quite healthy. The sinuses on the right side, however, had evidently been obliterated a long time previously and were reduced to firm cords. The diagnosis was made *post-mortem*.  
*Albert A. Gray.*

**Bar (Nice).**—*Hæmorrhagic Inflammation of the External Auditory Canal and the Middle Ear.* "Archives de Laryngologie, etc.," July–August, 1904.

Hæmorrhagic spots were first detected in the external meatus, then spread to the middle ear, the blood appearing in the pharynx; perforation of the membrane followed, accompanied by severe febrile disturbance. This condition is extremely rare and grave, has an infectious origin, and may be a sequela of influenza. Bacteriological examination showed the presence of staphylococcus pyogenes aureus.  
*Anthony McCall.*

**Bertemès (Charleville).**—*Ménière's Symptoms in Chronic Catarrhal Otitis, cured by Curetting the Post-nasal Space.* "Archives de Laryngologie, etc.," July–August, 1904.

The patient, whose age was fifty-nine, complained of noises and vertigo for eighteen years, and for the last three years a gradual loss of hearing in the left ear. Hypertrophic pharyngitis was present. Politzerisation improved the hearing. After curetting the vertigo disappeared, and the improvement in the hearing remained permanent.  
*Anthony McCall.*

## THERAPEUTICS.

**Seifert, O. (Würzburg).**—*The use of Chlor-methyl Menthol-ether as a Remedy for Catarrh.* "Wiener kl. Rundschau," April 2, 1904.

Seifert has had good results from the use of forman in the treatment of a number of cases of simple catarrh, and in a few typical cases of influenza with severe catarrhal symptoms. Several members of two families were simultaneously attacked; those treated with forman recovered within twenty-four hours, while in the others the symptoms were not arrested. Also in cases when the catarrh is at its height, and in influenza the inhalation of forman shortens the progress of the disease. Patients suffering from bronchial asthma experience great relief from it.  
*A. Westerman.*

**F. W. Hinkel.**—*A Consideration of the Value of Topical Applications to the Upper Air-Tract.* "The Therapeutic Gazette," May 15, 1904.

The author considers these applications under the heads of insufflations, inhalations, gargles, douches, sprays, pigments, and unguents. In his conclusions he does not consider that the indications for local medication in chronic inflammations of the upper air passages are so definite in many cases as are those for surgical interference, and he summarises the value of topical applications thus:—Insufflation of powders is inefficient. Steam inhalations are serviceable in early stages of catarrhal inflammations. Dry inhalation of the volatile parts of drugs is of little

utility. Inhalation of medicated smoke will control an asthma paroxysm, but finely nebulized oils are "more elegant when equally efficient." Gargles are of little value, but require training in their use. Douches are useful, and cleansing solutions are the most important topical applications in the upper air-tract. Drugs used for other than cleansing purposes act chiefly as irritants or by absorption, and are best applied by painting or spray. Positive evidence is to hand of the prompt absorption by the mucosa of the air-tract of certain active drugs (as cocaine, adrenalin, stramonium, and atropin). Experiments in relative absorbability of various drugs by this route are needed to establish a more certain and rational local therapeutics of the nose and throat. Massage in conjunction with paints is probably an important factor. So long as experimental knowledge is lacking of local effects in the upper air-tract of drugs topically applied, local therapeutics must remain inferior to surgery in accuracy of application and in efficiency in the treatment of the chronic diseases of the ear, nose, and throat.

*Macleod Yearsley.*

**Lajaunie** (Aix-les-Thermes).—*Natural Sulphur Vapours in the Treatment of Chronic Middle-ear Affections.* "Archives de Laryngologie, etc.," July-August, 1904.

The author after considerable experience believes that these vapours, used under pressure through a canula, give good results in old catarrhs and sclerosis, the treatment being followed by a diminution of the noises and sometimes an improvement in hearing. In suppurating cases they do no good.

*Anthony McCall.*

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We have received from Messrs. BURROUGHS WELLCOME & Co. specimens of the following new products :

"TABLOID" CALOMEL AND OPIUM each contains: Calomel, gr. 1, Powdered Opium, gr.  $\frac{1}{2}$ . "Tabloid" Calomel and Opium will be found a reliable means of securing the combined action of the two drugs. Each product is prepared with drugs of exceptional purity, presented in a condition to disintegrate very shortly after administration and promptly produce the therapeutic effect. It is hoped that this preparation will be appreciated, especially in view of the well-known tendency of calomel pills to become hard.

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THE  
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**NOTES ON NASAL SUPPURATION.**

BY J. MACKIE, L.R.C.P.ED.

IN the few remarks which I wish to submit for your consideration my contention will be :

1st. That the essential cause of nasal suppuration is defective drainage.

2nd. That defective drainage is mainly due in childhood to adenoids and lymphoid hyperplasias.

3rd. That later it is the result of hypertrophies and deformities resulting from lymphoid hyperplasias during the period of active growth and development.

4th. That by adopting this view of the natural history of nasal suppuration the whole subject becomes more intelligible, and a simpler and more rational treatment becomes possible.

We are all agreed that from earliest infancy to adult life the naso-pharynx is a region peculiarly liable to catarrh and hyperactivity of lymphoid tissues. This means that for a considerable period of early life, while the growth and development of the nasal orifice is being effected, the naso-pharynx is in a state of active congestion, its mucous membrane is bathed with purulent or other irritating discharges. We can all, when an operation for adenoids is being discussed with an anxious mother, wax eloquent over the arched palate, the gaping mouth, and the stupid look which comes from habitual mouth-breathing. I doubt if we think so much of what is perhaps of more serious import, the malign



influence of early naso-pharyngeal disease on growth and nutrition. If we systematically investigate this point, and take every opportunity of inquiring into the early history of people with normal noses, we will seldom find that there has been any prolonged catarrh in early life. If, on the other hand, we take our cases of septal and turbinal distortion, our chronic smouldering empyemata, above all our cases of ozæna, we never fail to find a history of naso-pharyngeal trouble in early life. Further, how often do we find young adults brought to us for sinns and other intra-nasal mischief on whom years before we had operated for adenoids.

Adenoids is often a disease of very early life, and frequently before cases are brought under our notice changes have been produced by them in the nasal passages which a simple scraping of the pharynx is too late to remedy. Personally, for some time it has been my custom in all adenoid cases to carefully examine the nose, and if I find any considerable obstruction, I endeavour to deal with it at the same time that I perform the adenoid operation, the part most often receiving attention being the head of the middle turbinal.

I hold that most if not all cases of ozæna have their origin in childhood, and are due to the causes I have mentioned. If this view is correct, then an ordinary case of ozæna will form a fitting study to test the influence of foul discharges on development. Taking an average fairly severe case, the middle turbinal will be found in its anterior half broadened, pressed against, and seemingly incorporated with the outer wall. Its posterior half is even more hypertrophied, often twisted on itself, and curled backwards and upwards. In extreme cases, where the face is flattened and the spheno-ethmoidal recess shortened, it may be found pressed against the anterior wall of the sphenoid. It is very easy to see in such a case how drainage is interfered with. The outlet from the posterior ethmoidal and sphenoidal cells is blocked, while the spheno-ethmoidal recess itself has become practically a closed cavity.

If the view that nasal suppuration has its origin primarily in the nasopharyngeal diseases of childhood is the correct one, we would expect to meet with its first indications in the region of the middle turbinal and the ethmoid cells. My belief is that such is the case.

The study of the diseases of the nasal sinuses began with those most obvious and those approachable by the general surgeon. Old beliefs die hard, and the errors of one text-book have a knack of showing themselves in its successors. At the present day, if those of us who have considerable rhinological experience would disregard

for a moment the importance formerly attached to disease of the antral and frontal sinuses, we should, I think, find that an enormous preponderance of all cases of sinus disease had their seat in the ethmoid.

I do not propose, however, to enter into the question of the relative frequency of disease of the various nasal sinuses, thinking it of more importance that we attempt to bring into some sort of cohesion our knowledge of straggling facts, and, if possible, to arrive at some practical common-sense view of the situation, which shall offend neither our conceptions of normal nor of pathological anatomy, which shall be explanatory as far as causation is concerned and helpful as far as treatment is indicated.

Let us, therefore, not cavil over the anatomy of individual sinuses, but look on them as massed together, interdependent parts of the composite skull. It is evident at once that the centre of this system must be the region of the middle turbinal. Here the various sinuses open, through here all discharges must pass, and here disease or obstruction, by all the laws of surgery, will surely lead to disease in the parts beyond. And if we except a few cases of antral disease of dental origin, probably almost all our cases of nasal suppuration do so originate.

As an individual sinus, the frontal is frequently the seat of disease. To some extent this probably accompanies most cases of anterior ethmoidal suppuration. But who is prepared to say that he has seen a case of primary frontal suppuration? The same may be said of the sphenoid, where I believe disease is more common than in the frontal, and where it is associated with posterior ethmoidal mischief, the victim of which has but to lie on his back to get a drip of infecting pus into the sphenoidal opening.

With the antrum of Highmore, where we may have infection from a dental source, it is different. The proportion of such cases is probably much over-estimated, a greater number arising, as in frontal and sphenoidal disease, from conditions obstructive or infective within the nasal passages. This is strikingly seen in some of my cases, where antral suppurations, which had persisted even after so-called radical operations, rapidly disappeared when disease in the middle and upper regions of the nose was dealt with.

It is a convenience to divide ethmoidal cases into anterior and posterior—not, however, from mere anatomical considerations, for which perhaps it is possible to have a too slavish regard. As our experience broadens, we soon see how often nasal suppurations laugh both at anatomy and physiology, the presence of pus in

any particular region of the nose being about as deceptive as the position of pain, and as uncertain as a safe guide to the true focus of disease.

With reference to disease of the posterior set of cells, of all nasal suppurations perhaps the earliest and the most common, the characteristic symptom is post-nasal catarrh. This time-honoured term covers a set of symptoms which has been a fruitful source of worry to the physician down the whole history of our art. With its simple forms we are all familiar, and they need not be further considered here. I should like, however, to draw attention to a type less common, perhaps, but of which a full knowledge is essential not alone to the rhinologist, but to the family doctor and practising physician. I refer to those cases in which the constant foul drip from the diseased posterior cells has infected not only the pharynx and larynx, but even the trachea and bronchi, where a set of symptoms has been set up, which, along with the depressed health and occasional elevations of temperature, is often mistaken for phthisis. In these cases it is not a question of irritation and cough from the mere physical presence of pus, but a genuine and specific infection from above. I was able to verify this in some of my cases, where a profuse purulent discharge could be seen bathing the larynx and clinging to the side of the trachea, a discharge similar in every way to that which was found on the back of the palate and oozing from the posterior nares.

On several occasions I have remarked the muddy brown nature of this pus, and an odour varying from a faint sickly aroma to the full fœtor of ozæna.

The following may be taken as an extreme example of the cases I refer to:

F. W——, a young lady aged twenty-five, but with the worn, sallow look of a much older woman, had suffered for some years from cough, expectoration, headaches, and general debility. For the past two years her breath had acquired a most offensive odour, so much so that it could be detected on going into any room where she sat. She coughed up large quantities of foul dirty brown pus, while a similar discharge was seen in her posterior nares. Diagnosing disease of the posterior ethmoidal cells with infective tracheal and bronchial catarrh, I removed her middle turbinals and laid open her posterior ethmoidal and sphenoidal sinuses. Improvement was rapid after the operation, and although the bronchial trouble was some time in clearing up, within a year she was well in every way and looking the picture of rosy health.

Another case, A. B——, aged nineteen, on whom I had a few



years before operated for adenoids, for some time had suffered from post-nasal catarrh, cough, and expectoration, with increasing general ill-health. She was at school abroad, but was brought home on the advice of the school medical attendant, phthisis being feared. This fear was accentuated when advice was sought in this country. On account of her post-nasal symptoms she was brought to me. I dealt with the case by operation as one of ethmoidal disease; her symptoms, both chest and nasal, disappeared, and now, two years after, she is a magnificent specimen of a healthy active English girl.

A. C——, a similar case, was brought to me after having passed the winter in a Bournemouth sanatorium for the cure of consumption. I performed a similar operation, with a similar happy result.

Another case, O. H——, as a boy had a foul nose, which never quite cleared up and merged in manhood into a case of recurrent polypus. These polypi were attended to at intervals, but in the meantime bronchial trouble set in, and there was increasing difficulty, with cough and expectoration. When I saw him he was expectorating immense quantities of a liquid brown pus, with, as often seems to be the way in such cases, little or no difficulty. In operating on this gentleman I removed perhaps a larger amount of diseased nasal tissue than I have ever done in such a case. Nine months after the operation all pus had disappeared from the nose, and gradually too the bronchial symptoms subsided. Needless to say, the general health and appearance of this patient immensely improved.

I could relate many other cases where diseases of the posterior set of cells lit up mischief in the air passages below, but these will perhaps sufficiently indicate the type I refer to.

The antrum and the anterior set of cells I shall not specially refer to here. My remarks on these will come better, perhaps, when considering treatment.

#### TREATMENT.

As regards treatment, I fear I have nothing very striking to suggest. The general principles of surgery hold good in the nose as elsewhere, and must not be ignored. The general surgeon when he meets with an inflamed and suppurating area, with pockets of pus ramifying among the tissues, will be satisfied with nothing short of a thorough exposure and drainage of the whole diseased area. It is not otherwise with the rhinologist, and, unless he bear



this constantly in mind, his results in treatment are not likely to be striking. Judging from my own early cases, and perhaps to some extent from what I have seen of the work of other surgeons, I am satisfied that tinkering surgery in the case of advanced sinus disease does more harm than good. If we do not feel sure of our ground, if we are not satisfied that the confidence of our patient will stand the strain of a tedious and painful course of treatment, if we are not ourselves prepared to go fearlessly on with our case straight to the end, it were better for our patient that we altogether held our hands.

In cases comparatively recent, due perhaps to an attack of influenza or even a severe ordinary cold in a patient in whom drainage is obstructed in the middle meatus, a complete cure may generally be effected early, by dealing with the obstruction. But in cases of long standing, where the passages are blocked by bony deformities, redundant soft tissue and polypi, progress must be slow. In such cases I have often operated twice, and not infrequently three times under a general anæsthetic before effecting a cure.

I may here state that in using the term "cure" I do not necessarily mean that the last vestige of discharge has ceased. After all, discharge is only a symptom, and by no means the symptom most painful or dangerous to the patient. The surgeon who takes his stand on the symptom of discharge alone, and whose prime consideration is to secure its complete cessation, runs the danger of holding his own skill and his own mere technical results of higher importance than the welfare of his patient. By extensive, perhaps dangerous, operations and the removal of great masses of tissue, an early drying up of the sinuses may be secured, but a nose so treated has to a large extent lost its functional usefulness, a condition of affairs that must ever be greatly deplored. I feel very strongly on this point, and think that in cases of extensive disease, where there is no pressing evidence of extension of infection, we ought to move slowly in treatment, first establishing free drainage through the main pathways of disease, then watching and waiting until it becomes evident what parts are hopelessly diseased, what parts show evidence of returning health, then at a subsequent operation dealing with the hopelessly diseased areas. By proceeding in this way we conserve much that otherwise would be sadly missed in the future of the nasal economy.

Where there is evidence of extending infection we must be bolder and take risks. By so doing I believe in two or three instances I may have saved the lives of patients. In one I failed.

This case, where my operation probably only hastened death by a few days, is the only fatal case I have had in nasal surgery.

When we have satisfied ourselves that we have to deal with extensive disease of the posterior sinuses, and when the passages are obstructed by masses of diseased middle turbinals, I hold that it is better to operate pretty freely at first. It would seem that the physiological efficiency of the nose is much less interfered with by operations on the middle than on the lower turbinals. If you examine one of your cured cases of extensive ethmoiditis, and bear in mind the masses of diseased tissues which were removed, you will be struck with the almost normal appearance of the passages, and will wonder how accommodation was ever found for such masses of disease. This happy result is in part, I think, due to the falling back of the framework of the nose, in part, I am almost inclined to think, to something which looks very like regeneration of tissue. These considerations and the impossibility of effectively dealing with the posterior group of cells until a complete clearance has been made in the middle meatus has led me to use more energy in operating here than elsewhere in the nose. Here I may fittingly note one interesting point in diagnosis, which I consider of value. In going over a suspected case, when you have administered cocaine and adrenalin to the middle meatus to help in your diagnosis, you will at times find that the middle turbinal remains red and turgid, after the neighbouring parts have become blanched and contracted. This, I find, is a pretty sure indication of underlying disease, and when I meet with this in association with chronic purulent post-nasal catarrh I do not hesitate to perform the complete operation for disease of the posterior sinuses. That is, I remove the middle turbinal and boldly lay open the cells with the curette. This proceeding, though it looks a formidable one to the uninitiated, is both simple and safe in the hands of the rhinologist.

The sphenoid must be left for later treatment, should such prove necessary. In most cases, however, it will be found that, after the operation I speak of, sphenoid suppuration will clear up without further attention. Should it not do so, the sphenoidal is perhaps the easiest of all the nasal sinuses to treat. Its anterior wall is easily broken down, when, thorough drainage being established, it soon gets well. Although during the past few years I have dealt with a considerable number of cases of sphenoidal disease, it has not been my lot so far to meet with an example of those cases one sees frequently recorded in books and papers, where the sinus is filled with polypi and granulation tissue. I do not think that the

histological character of the lining of this cavity readily lends itself to such a condition. Its mucous membrane is exceedingly thin and intimately adherent to the underlying bone; its submucous layer is reduced to a minimum, nor does the blood supply seem very ample. In health it seems almost bloodless, having an appearance very similar to the inside of an oyster-shell. In many of my cured cases, where you can see from the anterior nares right through to the posterior wall of the sinus, this can be well seen.

With reference to the question of polypus; I may note that I have several times seen in suppurative disease of the sphenoid that the mucous membrane of the nasal aspect of its anterior wall had become degenerated into a condition which would perhaps be best described as myxœmatous œdema.

In dealing with the anterior set of cells, the frontal often gives trouble. Let me here state that I am perfectly aware of the distress often caused by frontal suppuration; I am perfectly aware of the importance attached to its treatment, and of the ingenious operations devised for its cure by several eminent rhinologists. All the same; judging from my own experience, I am obliged to differ from them as to the frequent necessity for such heroic measures. Among my cases of nasal suppuration I have had not a few with frontal complications, but in only one have I found an external operation necessary. Of all the nasal sinuses the frontal surely is the one best adapted by Nature for ridding itself of catarrhal secretions, and if it becomes the subject of empyema it can only do so by obstruction in the neighbourhood of its ostium. By dealing thoroughly with this I think we will generally find it possible, not perhaps in every case to completely dry up the frontal discharge, but to reduce it to a minimum and to remove pain and discomfort. I submit that a slight frontal discharge through a free ostium is a small matter, for which a dangerous and disfiguring operation should not be lightly entertained. Were any rhinologist here unfortunate enough to become the subject of frontal suppuration, I think I may venture to say that he would be very much inclined to take my view of this matter. It is only fair, perhaps, for me to say that, my cases being all private ones, I exercise a more effective control over them, and meet with perhaps more intelligence in the carrying out of after-treatment, than I would have done in the case of hospital patients, on whom I can well conceive that on this account external operations may at times be the better treatment.

As regards antral suppuration, though I am prepared to admit, as I have already said, that a certain proportion of all cases is due



to dental origin, I maintain that a larger proportion of them is due to the same causes as sphenoidal and frontal disease, viz., to obstructive or infective disease in the neighbourhood of the natural opening. If you take a case in which there is no obstruction in the middle meatus, and where the indications are all in favour of a dental origin, all that is necessary as a rule is to remove the offending tooth and insert a drain for a week or two, when the discharge will often be found to cease. On the other hand, where there is obstruction in the middle meatus, and where the teeth are sound or gone, a simple drain through the canine fossa is alone a very futile measure, but when accompanied with the removal of the disease or obstruction in the nose, then such a case often speedily gets well. In some cases I have found that the antrum, though well drained, continues to discharge for months without appreciable improvement, when an operation to remove other intra-nasal disease automatically cured the discharge. It may be—and this is a point which must be borne in mind—that the nasal disease keeping up the antral discharge may be anywhere, even in the posterior ethmoidal cells. The following case will illustrate this last point.

Miss L—, aged twenty-nine, for years had suffered from ill-health, headaches, nasal discharges, a macerated pharynx, hawking and coughing. Diagnosing double ethmoidal disease and empyema of the left antrum, I operated. The patient was to some extent relieved, but the antral discharge continued profuse and there was still pus in the throat. I again operated, further clearing the nose, enlarging the antral opening, and thoroughly cleaning out the cavity. The symptoms still continued, as also did the patient's distress, and she again implored me to operate if I thought there was a chance of my being able to get at the root of the disease. By this time, feeling more sure of my ground in such cases, I performed the complete operation for disease of the posterior cells, in no way interfering with the antrum, which was well drained through the canine fossa. This patient was in low health, and for a long time had been taking very little nourishment, so I advised a month in bed after her operation, with modified Weir-Mitchell treatment. At the end of this time her nasal symptoms had entirely disappeared, her post-nasal discharge had ceased, while her antrum was healed and her drainage-plug abandoned.

The following case is interesting, not only as showing the importance of clearing the nose in antral disease, but is highly instructive in connection with other points.

J. S— had scarlet fever twelve years ago, after which she



suffered from nasal suppuration and headaches. Five years later her right antrum was opened in London. The operation was unsuccessful, and two years later an eminent specialist performed a radical operation on the same side. The thoroughness of this operation may be estimated from the fact that now, seven years after, a large hole passes from the canine fossa into the antrum, and another from thence into the lower meatus, the lower turbinal having been removed. Pus continued to come through the antrum, and the headaches persisted. She had periodical attacks of fever and pharyngitis, while there was great falling off in general health. Two years ago, in conjunction with a medical relative and a well-known physician, I saw her in one of these attacks. The pharyngitis and the fever passed off in a few days, but a persistent pain remained over the left eye. I diagnosed ethmoidal disease, and suggested that it should be dealt with surgically. The London specialist who had performed the radical operation was brought down to see the case. He could not agree with me as to the ethmoidal disease, and from certain eye symptoms feared deeper mischief. Nothing was then done, but later, the pain over the left eye being so distressing and persistent, her medical attendants thought it wise to explore the left frontal sinus. This was done by a general surgeon. The sinus was found quite healthy, but for some time the pain disappeared, probably from division of the nerve. After an interval, however, it returned, and the case stood as it did, the feverish attacks and pharyngitis continuing. At this stage I was asked to take full charge of the case, and take what steps I considered necessary. I removed the left middle turbinal bone and laid open the posterior ethmoidal cells, liberating a large quantity of pus. A week later I broke down the anterior wall of the sphenoid, which was full of pus, and established drainage throughout. The patient improved, but the pain over the left eye never quite disappeared, while she had further feverish attacks. Up to now, from the pain being so distinctly localised over the left eye, I had perhaps paid too little attention to the right side, though the head of the middle turbinal had always seemed to me suspicious, and the persistent discharge from the freely drained right antrum was a puzzle. I now operated on the right side, carrying out the same procedure as I adopted on the left, laying open the posterior ethmoidal cells. Though the way was now clear to the anterior wall of the sphenoid, I could find no opening into its cavity, and as the mucous membrane covering it continued deeply congested, I broke through to the sinus, and found it full of dirty brown pus, pus of a different character to what had come

from any of the other sinuses. It drained badly at first, and I had to enlarge the opening. The case then rapidly did well, and at last the right antrum ceased to discharge.

I have described the case at some length, on account of its many instructive points. Chiefly I would draw your attention to these :

1. Even a brilliant radical operation on the antrum will fail if we leave diseased areas above to drain into it.

2. Persistent pain over one eye in a mixed general sinus case, a pain too which continued after all disease on the same side was cured.

3. The attacks of fever headaches and pharyngitis, a feature of many advanced sinus cases, were very marked.

4. The possibility of a closed empyema of the right sphenoidal sinus.

To return to our consideration of antral cases. I had been led by such experiences as in these two cases, and in others, to considerably modify my procedure. All along antrum cases have proved most troublesome to me, and at one time or another I think I have performed most of the operations, radical or otherwise, which have been suggested for their cure. I now, even in the most chronic cases, content myself with an opening in the canine fossa sufficiently large to enable me to explore the diseased cavity. With this simple proceeding and the thorough clearing up of all disease above, I find that my results are more satisfactory than hitherto. I may say that I think we sometimes court trouble by paying too little attention to the drainage. For some time I have abandoned all tubes, either rubber or silver, and a few days after the operation get a dentist to fit in a solid vulcanite plug, with a small flange to rest on the gum. These, well fitted, produce little or no local irritation, whilst their composition lends itself to a more efficient cleanliness.

The interesting points in connection with the subject of nasal suppuration are so numerous that the difficulty is, not in knowing what to say, but in knowing when to stop.

## THE SEVENTH INTERNATIONAL OTOLOGICAL CONGRESS.

*Held at Bordeaux, August 1-4, 1904.*

*President : Dr. E. J. MOURE (Bordeaux).*

### REPORT OF PROCEEDINGS.

*Monday, August 1.*

POLITZER, A. (Vienna) : *Upon the Necessity of the Official Teaching of Otology in the Faculties of Medicine.*

IN this memoir the Professor of the University of Vienna gave a *résumé* of the existing state of the teaching of otology in the different faculties of medicine in Europe and America. He showed the inequality of this teaching in the faculties of different countries, and as the result of scientific and practical experience he arrived at this conclusion: that it is absolutely necessary officially to instruct and to examine students in otology, in the interest of the well-being of suffering humanity.

GRADENIGO, G. (Turin) : *The Necessity of Rendering the Teaching of Otology obligatory in the Universities.*

The paper was a demonstration of the inefficiency of the purely optional teaching of otology in the universities, and of the necessity of giving to this course the sanction of compulsory examinations. The injury that this state of things causes to medical men, to patients, and to the dignity and importance of special studies, was dealt with. The compulsory teaching should be limited solely to that part of otology which particularly interests practitioners, and to a course not longer than six months. A proposal was made to nominate an international commission in order to obtain from the several Governments the recognition of special teaching.

YEARSLEY, MACLEOD (London) : *The Constancy and the Variations of the Supra-meatal Spine of Henle.*

Krisselbach, Schultze, and Lenoir have given statistics based upon the examination of only one to two hundred crania. The author has examined 1,012 skulls, making thus a total of more than 2,000 ears. These crania have been taken from various places in all parts of the world. Out of the whole number the spine was absent in 155 cases, and was but slightly marked in a

much larger number. Each time, however, the experienced eye could easily recognise a supra-meatal depression. It is therefore the latter which the author considers to be a much safer guide than the spine itself to the antrum. The author showed drawings of the commonest varieties, both of the spine and of the depression, and made some observations upon the development and comparative anatomy.

BROECKHAERT, J. (Ghent) : *Upon Injections of Paraffin while cold with a new form of Syringe.*

The syringe for injecting solid paraffin consists of a metallic barrel with a piston of metal notched on the stem. It is connected by a screw to a lever which works the piston. The needle, in the form of a bayonet, is slightly flattened at the point so as to produce a ribbon of paraffin. The paraffin is fusible at 45° C., sterilised, and made in rods to fit the barrel. The instrument can be worked by one hand.

TRÉTRÔP (Antwerp) : *Some Practical Applications of Bacteriology to the Speciality of the Ear, Nose, and Throat.*

A description of aseptic methods applied to the examination of patients, to instruments, to operations, and to dressings. The author describes only the most simple and the most efficient modes of proceeding, and he insists, in the course of his paper, upon the necessity of attending to every detail.

DREYFUSS (Strasburg) : *On the Influence of Quinine upon the Labyrinthine "Tonus."*

According to the experimental researches of the author, performed upon the guinea-pig, quinine paralyses the functions of the auditory nerve in both its branches, that of the auditory labyrinth and that of the labyrinthine "tonus." The author explains the differences presented by normal animals and those which have received an injection of hydrochlorate of quinine, upon the rotating table, and the very marked differences between these two groups after the instillation of chloroform into an ear. He considers that the effects of quinine in ear diseases with Ménière's symptoms are due to the paralysing effect of this drug upon the "labyrinthine tonus"—that is to say, to the diminution of the sensibility of the vestibular branch of the acoustic nerve.

MÜLLER, J. (Copenhagen) : *Some Remarks upon Oto-sclerosis, with an Autopsy.*

The author reports a case of deafness in a woman aged thirty-



two, presenting the clinical signs of oto-sclerosis. A *post-mortem* examination demonstrated the presence of the characteristic bony lesions described by Politzer, Bezold, Siebenmann, Katz, and others, namely, a formation of spongy bone in the wall of the labyrinth, particularly in the neighbourhood of the stapes.

On the right side there was true ankylosis of the stapes, while on the left side the annular ligament was preserved. Moreover, the walls of the cochlea were invaded on both sides. The acoustic nerves seemed to be intact, though they did not stain well by Weigert's method, on account of the length of time occupied by decalcification. There were no lesions of the mucous membrane of the tympanic cavity; the disease of the labyrinthine capsule was therefore probably primary.

The author said that even now it was not easy to distinguish this disease from chronic catarrh of the tympanum, because we had not yet a large enough number of cases in which a functional examination as well as a microscopic examination had been made. It was especially difficult to differentiate between true oto-sclerosis and fixation of the stapes following tympanic inflammations. However, a case of deafness on both sides, developed without apparent cause, and particularly without either catarrh or suppuration of the middle-ear, and in which the tympanic membranes were normal or only a little indrawn, might be diagnosed as oto-sclerosis. If there were, besides, pronounced heredity, the presence of paracusis of Willis, and the case were influenced by changes of weather, and at the onset of the disease there were that peculiar transparency of the membrane tympani which Schwartze described, the diagnosis was strongly confirmed.

As to functional examination, usually bone-conduction was normal or diminished; air-conduction was diminished. Rinne was often negative, Gellé negative, and the limits of perception, especially the superior limit, narrowed.

DENCH, E. B. (New York): *The Radical Operation in Chronic Suppuration of the Middle-ear.*

The statistics of the New York Eye and Ear Hospital showed that out of every 83 males with middle-ear suppuration there was always one affected with some severe intracranial complication. For this reason the author advises that all cases of chronic purulent otitis media should be treated by the radical operation.

A report of 98 cases was given, with the following results: In 71 cases the suppuration was absolutely cured; in 16 cases a slight

suppuration remained after the operation; in 5 cases the operation did not cure the suppuration, and in 4 cases the ultimate result was unknown. There were two deaths, but in neither case could the result be attributed to the operation. In two cases only out of 98 was the deafness made worse; in all the other cases the hearing was improved or remained unaltered by the operation. In 63 cases the cavity was covered with Thiersch's grafts; in 43 the grafts were introduced at the first operation; in 20 cases secondary grafts were introduced five or six days after the first operation. The author thinks that the application of grafts, by preference at the time of the first operation, sensibly diminishes the period of convalescence.

In one instance the jugular bulb was affected, but the patient recovered without any bad symptom. In the whole series of cases there was not a single instance of permanent facial paralysis. Temporary paralysis might supervene, either directly after the operation or within the next six days, but the author's experience was that the muscles of the face recover their function after a very short delay.

SNOW, SARGENT (Syracuse, N.Y.): *Catarrhal Deafness, with a Report of 400 cases.*

The conclusions indicate conclusively that much can be done for undoubted chronic cases, if the causes of the recurrent congestion are understood and removed.

A bad prognosis is often wrongly based upon the results of too short a trial of tentative treatment, without having previously removed the causes.

HEIMANN (Warsaw): *The Indications for opening the Mastoid Process in Acute Purulent Otitis Media.*

Experience, he said, taught that the suppuration of the mastoid which accompanied acute suppuration of the middle ear might resolve itself spontaneously: hence the necessity of distinguishing cases in which a spontaneous cure was possible, from those in which it could not be expected.

The persistence of inflammatory symptoms in the tympanum and the mastoid for eight or ten days was not an indication for operation. Generally the question of operation need only be considered from three to five weeks from the onset of the otitis. Before deciding to open the mastoid, one must exhaust antiphlogistic treatment, practise paracentesis of the membrane, enlarge

the perforation, and evacuate the pus by means of irrigation through the Eustachian tube. Fixed pain in the mastoid and the surrounding parts, as well as the intermittent pain which did not disappear after the treatment mentioned above, at the end of three or four weeks, and which was not caused by retention of pus, were indications for operation. In case of abundant suppuration, with creamy pus, continuing more than a month in spite of treatment, operation was indicated. Tenderness at the apex of the mastoid or in the direction of the antrum was an additional indication. Even when moderate suppuration with a tendency to fever continued for two or three weeks, operation was necessary. Suppuration of six or eight weeks' duration with diminution of hearing which did not improve indicated operation even when no other morbid symptoms existed. Inflammatory swelling of the mastoid process appearing early in the case was not an indication for the mastoid operation. But if the symptoms lasted longer or appeared later in the course of the attack, operation was required. It was the same with general weakness, with mental depression and gastro-intestinal trouble, if they continued after the time usually observed in cases of acute suppuration.

Meningeal irritation which did not depend upon retention of pus and which did not disappear after free incision of the membrane was an indication for immediate operation on the mastoid.

Wilde's incision was not sufficient: it should be followed by opening the bone. The opening in the mastoid process should be large, and all the cells should be carefully curetted. The radical operation was never indicated in cases of mastoiditis, complicating acute suppurating otitis media.

Trephining the mastoid was an operation without danger.

Intracranial complications except confirmed meningitis and general infection did not constitute a contra-indication. On the contrary, the operation might facilitate the discovery of these complications. Even meningitis was not an absolute contra-indication.

According to statistics it was not proved that too early an operation is any advantage for the progress or the cure of the disease.

CASTEX, A. (Paris): *The Ear and Accidents of Occupation.*

The study of the lesions of the ear produced by accidents of work, he said, deserved to be investigated, as several nations had already made laws which recognised the diagnosis and the opinion of the aurist. The question was international, since it permitted a comparison of the jurisprudence of various nations. This memoir

was based upon seventy-eight personal investigations. Accidents of work to the ears are produced always under nearly the same circumstances (blows or falls on the head, railway or automobile accidents, explosions in mines, etc.).

Often the lesion of the ear passes at first unnoticed because no local external sign exists, and because the symptoms of cerebral concussion mask the other troubles. It results from this that the medico-legal examination is delayed. The lesion reveals itself by deafness, by painful hyperacusis, by paracusis loci, by diminution of the loudness of the voice, by entotic noises, and by vertigo accompanied by other manifestations explicable by traumatic neurasthenia.

One side is usually more involved than the other, and it is chiefly the internal ear which is injured (concussion of the labyrinth). Various marked troubles of vision affecting the eye on the same side have been noted.

The diagnosis is particularly embarrassing when the traumatism is complicated by a pre-existent affection of the ear. The most difficult point is to decide which belongs to the neurasthenia and which to the ear-affection. The auditory range should be taken for the loud voice and for the whispered voice and noted in fractions of the normal range of hearing. Malingerers are rare, but nearly always there is exaggeration, whether conscious or not, by the injured person.

The prognosis is grave; noises and vertigo often disappear, but deafness persists. Several examinations at long intervals are necessary for a decision.

The rôle of therapeutic measures is limited. The surest means of improving the condition of the patient is for him to receive pecuniary compensation for the accident: from this moment he is less preoccupied with it, he is relieved of his neurosis of procedure and recovers powers which he did not expect.

Every medico-legal report should form a conclusion upon the kind and the degree of the injury and mention if it is partial, total, temporary, or permanent.

MOURET J. (MONTPELLIER): *New Researches upon the Petrous Cells.*

This is the completion of some researches on the extent of the air-containing cells of the temporal bone. The author has already shown that in the adult and the aged these cavities may extend beyond the mastoid to the petrous portion, and even into a special region of the occipital, in the jugular process of this bone.



From the tympanic cavity air-cells develop most often towards the mastoid; they may also develop in the squamous portion, more particularly in the superior wall of the external auditory canal; but these cavities, leaving the tympanic cavity as a centre, may radiate in all directions and constitute cellular tracks of variable volume. The following groups can be distinguished:

The supra-attic group; the supra-labyrinthine group; the group in the wall of the internal auditory meatus, a prolongation of the last group; the retro-labyrinthine group; the ante-labyrinthine group, less frequent; the sub-labyrinthine group; the group in the inferior wall of the internal auditory meatus; the occipitotemporal group.

JAQUES, P. (Nancy): *Otorrhœa complicated with Fistula in the Furrow behind the Angle of the Jaw.*

A spontaneous perforation of the floor of the tympanic cavity with a fistula under the lobule, formed in a case of old otorrhœa with antral trouble. The case was complicated by nearly complete bony obliteration of the meatus by inflammatory osteophytes. The affection had caused incomplete facial paralysis by compression of the nerve at its exit from the aqueduct. The author was obliged to remove at the same time as the osteophytes the floor of the bony meatus itself, which allowed of the easy removal of the fistulous track, but he had serious difficulty in overcoming the cicatricial atresia in the course of the later treatment. The exceptional situation of the tympanic fistula, together with the scantiness of the discharge from the meatus, might easily have led to an erroneous diagnosis.

JAQUES, P., and DURAND, A.: *Presentation of Normal and Pathological Anatomical Specimens of the Ear and Air Passages preserved in a special way.*

VILLAR, F. (Bordeaux): *Technique of the Anastomosis of the Facial with the Spinal Accessory or the Hypoglossal Nerve in Cases of Facial Paralysis.*

The first operation was simple, the second a little more delicate. The suture of the nerves should be attended to very minutely, so as to avoid injuring the hypoglossal nerve. The best proceeding, he considered, was to pass the end of the facial into a buttonhole made in the hypoglossal. The hypoglossal-facial anastomosis was to be preferred, because the centre of the hypoglossal was nearer

to that of the hypoglossal than to the spinal accessory centre. For this reason it is said that the re-education after the operation is more speedy.

MOLINIÉ, J. (Marseilles) : *Obliteration of the Pharyngeal Orifice and of the Mouth of the Eustachian Tubes.*

The author observed this anomaly in two cases, one a girl, aged twenty-five, the other a man aged forty. The projections of the lateral wall of the nasopharynx were completely effaced and were replaced by an even wall. In both cases there was a certain degree of narrowing of the nasopharyngeal isthmus, which, in the girl, would not allow the passage of the index finger.

The subjective features were interference with nasal breathing, and deafness. The treatment adopted was to dilate the nasopharyngeal stenosis, but all attempts to find the orifice of the Eustachian tubes were fruitless.

In one case, the deafness being very pronounced, an opening was made in the membrana tympani, with the result that the hearing returned, and remains satisfactory after more than two years. This anomaly appeared to be acquired, as in both cases the onset of the subjective symptoms did not date back more than three years.

The pathogeny of this affection is very obscure; no morbid factor (syphilis in particular) could be discovered. But a fact to be noted was that both patients had undergone long treatment to the pharynx, which consisted chiefly in the galvano-cautery applied very freely and without discretion. Possibly these cauterizations could produce destruction of the extremities of the tubes and abnormal adhesions.

LAURENS, G. (Paris) : *The Surgery of the Ear in its Relations with the Vertebral Column and the Base of the Skull.*

Otogenic suppurations of the vertebral column and of the base of the cranium, though less frequent and less serious than intracranial complications, were more difficult of access, longer in healing, and sometimes necessitated several successive operations. From the clinical and operative point of view the base of the cranium could be divided into three regions: one posterior or occipital; one median, corresponding to the inferior surface of the petrous bone, the jugular, or sub-petrous region; and one anterior, the præ-, or latero-vertebral region.

The venous or lymphatic mode of infection was rarer than the origin through the bone by direct propagation.

Surgical treatment should be early and thorough, so as to avoid vascular, or nervous, or intracranial complications.

The first indication in vertebro-hypocranial suppurations was to remove the whole of the mastoid. The second stage was to explore methodically the three following points of the internal cortex which constituted the places of election for the propagation of pus from the mastoid to the base of the skull. These points were: (1) the digastric groove. (2) A zone between the sinus and the facial nerve, bounded in front by the posterior border of the meatus, behind by the sigmoid groove of the lateral sinus, below by the point of the mastoid process, above by the mastoid antrum. After thorough curetting of the mastoid the author has observed in his cases the presence of pus or the projection of granulations at this point, through which a probe could be passed through the base of the skull. (3) The lateral sinus and the dura mater of the cerebellum. The operation varied according to the situation of the abscess.

(1) Abscess of the posterior or occipital region. A transverse incision behind the ear from the tip of the mastoid process. A search for a lesion of the bone. Trephining of the occiput, and, if necessary, partial resection of the outer table if it was affected with osteitis.

(2) Abscess of the middle or sub-petrous region. An incision in front of the sterno-mastoid in glandular abscesses or Bezold's suppuration. Curetting of the sinus, ligature of the jugular, and irrigations from the jugular to the sinus if they were of phlebitic origin. Opening of the jugular sinus if necessary. Finally, resection of the petrous portion if this was affected with osteitis.

(3) Abscess of the anterior or vertebral region. Two cases—  
(a) *Pharyngeal abscess without fistula*.—Opening by the external route in front of the sterno-mastoid to evacuate the focus. Resection of the tip of the transverse processes if secondarily carious.  
(b) *Pharyngeal fistula*.—Enlarge the fistulous opening, median or lateral. External incision, which will allow search for the causal focus, and irrigations with oxygenated water, which will flow out by the buccal cavity.

From an operative point of view the capital indication was the complete abrasion of the surface affected with osteitis whatever the depth and the sacrifices it exacted.

PROCEEDINGS, *Tuesday, August 2.*

DRS. POLITZER, GRADENIGO, and DELSAUX reported on *The Choice of a Simple and Practical Acoumetric Formula.*

THE formula they propose for acoumetric notation is intended only for cases occurring in ordinary practice. If a detailed examination of the auditory function is necessary, the aurist will employ the means of measurement and the instruments which appear to him most appropriate.

The report is divided into three parts: First they pass in review the methods serving to measure the auditive capacity in the normal and the pathological condition. Then they seek the best mode of carrying out the examination of the hearing in practice, finally coming to the determination of the acoumetric formula, suitable for recording the principal indications that they have collected.

I. *Examination of the hearing in the normal and in the diseased condition.*

The different methods actually employed for determining the auditive capacity have formed the subject, lately, of numerous and exact researches emanating both from physiologists and aurists. It was by taking the facts of modern physics as a foundation that one was led to study and analyse the different tones (phonèmes) constituting the human voice. It was also by the help of modern physics that the laws of vibrating tuning-forks were determined, and that a relation could be established between the hearing power for speech and the perception of certain sounds produced by tuning forks.

It must always be recognised that many gaps still exist in this study, and that agreement is not established between the authors engaged upon this important question.

As far as concerns the voice, the phonograph has shown that the old subjective methods for determining the pitch of the sounds must be abandoned, or, at least, that they must give place to objective methods yielding much more exact data. Nevertheless the study of the constituent tones of the voice is still incomplete, for we have only succeeded in determining with certainty the value of the vowels and not that of the consonants.

In investigating the question it is found that the pitch of the constituent tones of the same vowel vary considerably according



to certain factors, among which the language or dialect to which it belongs must be placed in the first rank. The pitch of the same vowel presents notable differences according to the consonant which precedes or that which follows it, according to the rhythm of the syllable under consideration, etc.

As to the range or maximal distance at which, under normal conditions, the tones of the voice are perceived, it is found that neither the pitch of the sounds nor the rapidity of expiration during phonation have any direct influence. The conditions of the medium in which the examination is made, the degree of surrounding silence, and especially the greater or less facility possessed by the subject of experience in completing or in guessing the rest of the word from a particular sound, are so many causes capable of modifying considerably the results obtained. On the other hand, the relations of the perception of the same sound pronounced with a low voice or with the voice of conversation are still very imperfectly understood.

If we consider the instruments usually employed for the measurement of the auditory capacity, we meet with the same difficulties, notably in determining with certainty the pitch of the sound of Politzer's aconimeter, or that of the watch, even if the latter has a loud tick. For Politzer's aconimeter one of the authors (Gradenigo) found by calculation a value varying between 400 and 468 double vibrations.

They did not think it necessary to consider all the other types of aconimeters which have been recommended until now; these instruments possibly find a place in the aurist's cabinet, but they are badly suited for the exigencies of daily practice.

There are, however, instruments giving sounds of constant intensity, and consequently susceptible of being utilised in the measure of audition. But if it is true that they are capable of producing tones of a well-defined pitch, it is more difficult to determine the intensity of the sounds which they emit. Hence the uncertainties which they bring about in their applications to aconometry.

The type of these instruments is the tuning-fork. Of very low price, convenient and easy of use, the tuning-fork, when made to vibrate in a suitable manner, produces sounds sufficiently pure and free from harmonics.

Unfortunately the opinions of different experimenters are much divided upon the question of knowing how the intensity of the sound of a tuning-fork decreases in relation to the duration of the vibration. Thus the statements of Bezold and of Edelmann as to

the measure of decrement, considered by them to be constant for all tuning-forks, were contradicted by Schmiegelow, who praised a special mode of measuring; by Gradenigo, who depended upon the study of instantaneous photographs; by Quix and Struycken, who chiefly employed the optical methods of Gradenigo; and by Ostmann, who is the inventor of a new method of objective acoumetry.

There is no agreement either upon the relations existing between the amplitude of the vibrations and the intensity of the sounds of the tuning-forks. Certain authors allow a simple relation between these values; others attribute to the intensity the value of the square of the amplitude; others, again (Quix and Zwaardemaker), from their experiments, think that the intensity is equal to the square root of the amplitude ( $i = a^{\frac{1}{2}}$ ).

Values relating to the loudness of the sound of a tuning-fork at different moments of its vibration are also very variable, and their interpretation differs considerably. The appreciation of the measure in which the sound diminishes relatively to the distance is also a subject of discussions.

Finally, the differences of opinion which dominate the whole of the physiology of the middle and internal ear, and particularly the transmission of sound by bone-conduction, help to render uncertain the interpretations of the classic tests of hearing, and particularly of those that are made by the aid of tuning-forks.

It can be stated in conclusion that the more the state of actual knowledge upon acoumetry is studied, the more apparent becomes the extraordinary complexity of the researches which it necessitates and the extreme difficulty in giving an interpretation to the results obtained.

## II. *Simple and practical methods of acoumetry.*

The authors do not dwell upon the defects of the instruments actually in use for measuring the hearing; their imperfections compelled them to divide the functional examination of the ear into two parts—the quantitative examination or measure of the acuteness of hearing; the qualitative examination or determination of the defects of the auditory function for certain sounds or for certain sections of the scale of tones.

As stated above, the instruments most convenient for measuring the hearing do not generally give pure sounds free from harmonics; on the contrary, those which possess this quality, such as tuning-forks, are not suitable for the measure of the auditory capacity.

They express the hope that the extension of knowledge may allow us in the future to decide the tonality of our measuring instruments. With Quix, they place the different articulate sounds (phonèmes) in three distinct categories, those of the first category, *zona gravis*, corresponding to tones included between *ut* and *ut*<sup>2</sup>. They are normally heard at six metres.

Those of the second category, which Quix calls the *zona mixta*, are included between *ut* and *fis*<sup>4</sup>; they are recognised by the normal ear at a distance of 14 to 16 metres. The sounds of the third category, *zona acuta*, included between *ut*<sup>3</sup> and *fis*<sup>4</sup>, are perceptible normally at 30 metres.

The examination of the hearing practised by the aid of the whispered voice thus gives indications not only as to the quantitative perception, but also within certain limits relatively to the qualitative perception of the vocal sounds.

In an analogous fashion, and although the pitch of the sounds of the watch and of Politzer's acoumeter are not exactly defined, we may note that they correspond to the shrill tones of the scale.

In practice acoumetry can be divided into fundamental and complementary tests.

The fundamental tests comprise :

(a) Examination with the low voice and the conversation voice.  
(b) The examination with Politzer's acoumeter and with the watch.

(c) Examination with tuning-forks, including Schwabach, Weber, Rinne, and finally the determination of the field of audition, according to the conception of Zwaardemaker.

Among the complementary tests may be placed :

(a) The examination with a continuous series of sounds (Bezold).  
(b) The determination of the auditory field, as Hartmann and Gradenigo understand it, completed by that of the superior and inferior limits of audition.

(c) Corradi's test.

(d) Gellé's test.

(e) The examination of the permeability of the tube by Politzer's method.

(f) The electric reaction of the acoustic nerve, etc.

The authors only occupy themselves with the fundamental tests, from which can be drawn the acoumetric formula which forms the object of the present report.

(a) Examination by means of the voice. Practically the three categories established by Quix, for the whispered voice, can be reduced to two, the low tone and the high tone. It will be neces-

sary to determine word-types in different languages (vocal scale). By preference, characteristic words of the language in question will be chosen, and for well-known reasons they will be interspersed during the examination among indifferent words.

They see nothing practical in using certain simple syllables of Latin which have been proposed as word-types for an international vocal scale.

It is not useless to remark that examination with the conversation voice (since in this method of examination the other ear cannot be excluded) is only applicable to certain cases, when the hearing is sensibly equal on both sides, or when the other ear is much deafer than its fellow.

(b) Examination by means of Politzer's acoumeter and by the watch. Although they have been unable to obtain a type giving a tick with the same pitch and the same intensity, the watch is a very great help in every-day practice; its use is so easy and the indications furnished relatively to hearing power by bone conduction are so valuable that they consider it should be retained as an acoumetric measure until a more exact instrument is obtained (Poltzer).

Poltzer's acoumeter, as remarked before, is not perfect, but the data which it furnishes for appreciating hearing troubles of medium and high intensity have made them decide to preserve it in the arsenal of acoumetric instruments. The mode of using it should be a little different, they think, from that which has been practised until now. In order to obtain a tone of constant intensity, instead of raising the hammer with the end of the finger, and letting it fall back, it is better to let it hang freely and to give the instrument a movement of oscillation, as one does with an ordinary hand-bell.

(c) Examination by tuning-forks. In order to estimate the more serious troubles of hearing, and gaps in the scale of sounds, tuning-forks must be used. But the differences of opinion between authors as to the appreciation of the loudness of the sound in relation to the duration of the vibration of tuning-forks are such that they think it prudent to consider, for the present at least, only the length of time of vibration in relation to the liminal stimulus (Schwelle) for each tuning fork. As a corollary of what has gone before it must be borne in mind that the duration of perception and the relative intensity of the sound have no simple relation.

The tests of Schwabach and Weber are carried out with a fork giving 128 double vibrations. They should be retained, whatever may be the interpretation given to them. Rinne's test has been the subject of judicious criticisms relative to the mode in which it



is generally practised. But, in spite of its imperfections, Rinne's test carried out with a tuning-fork giving 64 double vibrations affords valuable indications in acoumetry. This manner of doing it is more simple than the methods proposed by Corradi, and later by Bonnier, for doing away with the theoretical objections which have been made to Rinne's test.

It is desirable to define the meaning of the term "auditory field," which may lead to ambiguity. It can be interpreted either as meaning the whole of the sections and gaps observed in the musical scale, or the whole of the points in space limiting the area within which a certain sound is audible (similar to the visual field in ophthalmology).

For the latter acceptation they think that the term "auditory horizon" could be adopted (Gradenigo). In order to determine the auditory field, it is sufficient, according to the proposal of Zwaardemaker to take several fixed points, dividing the scale into four principal zones: (1) The zone of the counter-octaves; (2) the chest register of the singing voice; (3) the zone of the vowels; (4) the zone of the consonants of high tone.

These zones are respectively comprised between the lower limit of the scale and *ut* (64 *v.d.*); between *ut* and *ut*<sup>2</sup> (256 *v.d.*) between *ut*<sup>2</sup> and *fis*<sup>4</sup> (2880 *v.d.*). They propose to substitute for the latter *sol*<sup>4</sup> (3072 *v.d.*), which only differs from *fis*<sup>4</sup> by a semitone, and which belongs to the diatonic scale of *ut*. The tuning-forks *ut*<sup>2</sup> and *sol*<sup>4</sup> that they employ should be furnished with a hammer similar to that which Lucae has adapted to his fork *fis*<sup>4</sup>, perfected by Quix, so that the force of percussion is constant.

In order to determine the liminal stimulus (*le seuil de l'excitation sonore*) the macroscopic figure invented by Gradenigo must be fastened to one of the legs of the tuning-fork *ut*. For *ut*<sup>2</sup> the microscopic figure of Gradenigo-Struycker will be employed; and for *sol*<sup>4</sup> the method of Schmiegelow will be retained.

Tuning-forks of the Weissbach type are more suitable for the determination of the auditory field than those of Bezold-Edelmann, on account of their smaller dimensions.

In order to fix the inferior limit of perceptible sounds, they are content with forks of 24, 32, and 48 double vibrations, corresponding to G<sup>2</sup>, C<sup>1</sup>, G<sup>1</sup>. They have discarded the fork of 16 double vibrations as being of little use in current practice. The superior limit will be established, not by the Galton-Edelmann whistle, too costly and inconvenient, but by Koenig's cylinders, which the maker can furnish at a moderate price if made in quantity. They propose to adopt cylinders giving *ut*<sup>6</sup>, *mi*<sup>6</sup>, *sol*<sup>6</sup>.

In short, the series of instruments necessary for practical acoumetry such as have been described will necessitate the expense of about a hundred francs, including a watch acoumeter.

### III.—*Determination of the Acoumetric Formula.*

For recording the results of the fundamental tests, they propose the formula which one of them (Gradenigo) presented in London at the last International Congress of Otology. It is arranged in two horizontal lines, so as to take up the minimum of space in the records of cases and in scientific publications.

It could certainly be made more simple, but then the record of certain results of fundamental hearing-tests would have to be omitted, without which in their opinion an exact representation of the hearing in a given case could not be made.

In some cases the hearing power of the watch through the temporal bone may be omitted, or even the results of the examination of the middle part of the auditory field, etc.

They have retained Latin words to designate the different tests of hearing, and for shortness they only employ the initial letter of the name of the author of a test or method. Here is the formula :

S.  
A. D.  
W.      R.   H.   Hm.   Ht.   P.   v.   V.  
A. S.  
A. D.  
          Li.   nt.   nt<sup>2</sup>.   sol<sup>4</sup>.   L.s.  
A. S.

A. D. signifies *Auris dextra*, A. S. *Auris sinistra*.

S. represents Schwabach's test. It should be made with the fork *ut* = 128 v.d. If perception on the vertex is normal, the sign  $\pm$  is added. If it is longer or shorter than the normal, the sign + or - is used, as the case may be. There must be a difference of three seconds, more or less, for note to be taken of the variation.

W means Weber's test ; for applying it the same fork is used ; an arrow indicates the side on which the sound is heard best ; the absence of the arrow indicates that W. is central.

R. signifies Rinne's test ; *ut* (64 vd.) is generally used for it, but a higher toned fork can also be employed, such as *ut*<sup>2</sup>, and in these cases the pitch of the fork must be noted. For recording the results of Rinne, Bezold's indications must be followed.

The measurements which follow should be made in the axis of the external auditory canal.

H. signifies the tests with the watch (Horologium). The distance at which the tick is heard by air-conduction is noted in the form of a decimal fraction. If it is only heard close to the ear, "prope" is noted; if on contact only, "concha;" and if it is not heard at all,  $H = 0$ .

Ht. means the watch applied to the temporal or pre-auricular region. If the watch is heard, the sign + is used, or the figure 0 if the contrary. Hm. means the watch on the mastoid region.

P is the notation employed for Politzer's acoumeter: the distance at which it is heard is noted in metres.

v denotes the test by the whispered voice, pronounced with the residual air; the distance is noted in metres. Care should be taken to enter two figures separated by a hyphen for the first and third zone of Quix (the deep and the elevated). Thus v 1-6 signifies that the words of the deep zone are heard at one metre, those of the elevated zone at six metres. If the whispered voice is only heard close to the ear,  $v = \text{prope}$ ; if the patient hears without distinguishing the word,  $v = \infty$ ; and if it is not heard at all,  $v = 0$ .

V indicates the voice of conversation, which is noted like the whispered voice.

The results of the determination of the inferior limit of perceptible sounds (L. i) in the musical scale, and also the perception of sounds in the middle part of the scale are expressed in hundredths of the normal duration. For the upper limit (L. s) the highest of Koenig's cylinders of which the sound is heard is noted.

Considering the numerous points which remained to be cleared up in the difficult question of acoumetry, they have recommended the institution of a permanent international commission for measurements of hearing power, to meet once a year and to make a report to each Congress (Delsaux).

QUIX, F. H. (Utrecht): *Determination of the Acuteness of Hearing for Whispered Sounds and for those of the Tuning-Fork.*

Whispered sounds can be classed according to their constituent elements. The author has made use of the well-known researches of Donders, Helmholtz, Hermann, Verschluner, and others. Vocal sounds can be divided into three groups, as follows (for the Dutch language):

1. Deep sounds included between *ut* and *re*<sup>4</sup> form the *zona gravis*, o, œ, m, n, r, u.

2. Acute sounds, included between *re*<sup>4</sup> and *sol*<sup>6</sup>: a, e, i, the diphthongs, J. Z. C. Sch., forming the *zona acuta*.

3. Mixed sounds included between *ut* and *sol*<sup>6</sup>. The *zona mixta*, to which belongs p.

In the second place, the sounds must be tested from the point of view of their intensity (physiological) or penetration. From numerous experiments, the author finds that the sounds of the *zona gravis* have a uniform intensity, but that they can only be heard at a much shorter distance than those of the *zona acuta*.

As to the intensity of acute sounds, they are divided into two groups—those which are heard at a medium distance, and those which are heard at a great distance. Mixed sounds have a medium intensity.

If simple words are sought for, composed of elements from the same zone, and of the same intensity, such words present the following indispensable advantages:

1. The possibility of guessing is reduced to a minimum, because each element is heard with the same intensity.

2. The distance at which they are heard clearly can be fixed with much more exactness and certainty.

3. With these words, a particular part of the scale can be explored and a quantitative and qualitative examination made.

4. The hearing power for whispered sounds can be compared with that for simple sounds of the zone to which the words belong.

Three values can therefore be given of the hearing power for whispered sounds, namely, for deep sounds, for acute sounds of medium intensity, and for acute sounds of greater intensity. These three values are in the proportion of 1:2:4.

The notation for mixed sounds can replace these three values in some cases, but must be regarded as incomplete. The mean intensity of these zones may be obtained by taking the mean of the values indicated by the limits of each zone. The examination is made with tuning-forks of the same pitch, specially made for this experiment.

The physical intensity of the sound of these forks at each instant of their vibration serves as a base for this quantitative examination. To this end the amplitude of the arms of the fork at each moment of their vibration must be measured. This amplitude is known if we know the logarithmic decrement of the initial amplitude. The intensity of the sound of a fork is a function



of this amplitude, and is according to special researches the exponential function  $\frac{1}{2}$ .

PANSE, R. (Dresden): *A New Mode of Graduating the Intensity of Sounds, and for the Objective Test of Audition.*

If a plate not susceptible of vibration is fitted to the ear and traversed by a speculum, so that sounds can only enter the ear by the opening of the speculum, and if a disc perforated by holes of various sizes is made to revolve in front of it, the quantity of sound entering the meatus varies.

Now this quantity is proportional to the size of the openings, and the size of the hole necessary for hearing a sound is proportional to the hearing power. In this way the degree of audition for all sounds can be expressed as fractions of the normal hearing power.

TRÉTRÔP (Antwerp): *An Attempt at Metric Acoumetry.*

The millimetric acoumeter presented to the Belgian Society of Oto-Laryngology in 1901 by the author is a personal method. What is required is one which can be made universal. Two solutions are proposed.

1. To base all values of acoumetry on the metric system by adopting a series of tuning-forks 10 cm. long, 1 cm. in section, set in action by weights of 10 grammes falling from a height of 10 centimetres. The different resistances of the parts of the electro-metric acoumeter are equally decimal values, and the electro-motive force furnished by standard batteries.

2. A much more simple solution is to have recourse to a horizontal rule graduated in centimetres and millimetres, and carrying a slide which holds forks insulated phonetically from the rule, and of a type determined by the Congress. A weight of 1 gramme falling 10 centimetres strikes them. The zero of the scale is applied against the tragus from which it is insulated phonetically.

The limits of the normal values to be determined by a commission appointed by the Congress.

BOXNIER, P. (Paris): *Acoumetric Notation and an International Tuning-Fork.*

The author proposes this formula :

R. ear : Air conduction { Hearing on contact or a { c.  
L. ear : Air conduction { Hearing on contact or a { c.

These measures are comparable, resting as they do upon the

measure of sound furnished by the foot of the tuning-fork applied to a tube fixed in the meatus, or directly upon the skin. In the latter case the fork should be applied to the knee rather than the cranium so as to avoid the disturbing action of the vibration upon the membrana tympani.

A tuning-fork giving 100 double vibrations is proposed. Its special form suppresses the harmonics and throws all the force to the foot. Such a fork is already in use for chronography, and by neurologists for studying the perception of vibration.

DELIE, A. (Ypres) : *Tobacco and Audition.*

The author reports ten cases of the action of tobacco, used to excess, upon the organ of hearing.

The principal signs are deafness, coming on or getting worse rather quickly, with varied tinnitus and vertigo, usually appearing later. The tuning-fork tests show an alteration of the internal ear. The consequences of the toxic action were particularly rapid and disastrous in young subjects suffering from sclerosis of the ear. Nicotine causes circulatory troubles, by irritating the great sympathetic nerve. It engenders or stimulates the development of a tropho-neurosis, which ends in acoustic neuritis.

ESCAT (Toulouse) : *Otic Migraine.*

Ear symptoms in the course of migraine have already been mentioned by Weber-Liel, Urbantschitsch and Rubiolis. Aural troubles (deafness, tinnitus, and earache) are observed in certain cases of migraine, sometimes simultaneously with the eye symptoms.

Most of the patients affected with primary otosclerosis (the hereditary type) with early signs of involvement of the labyrinth are, or have been, migrainous.

BOULAY AND LEMARC' HADOUR (Paris) : *The Psychic Element in Cases of Deafness.*

Two varieties exist, first those cases in which the deafness is entirely psychic, and secondly those in which it is only partly so. The latter class can be subdivided according as the psychic element is the dominating factor or not. This paper deals with those cases in which the psychic element is not the dominating factor; they are less common and more amenable to treatment than the others.

ROZIER, J. (Pau): *The Diagnosis of Syphilis by the Otologist.*

The author reports the case of two patients who came to consult him for a deafness which came on suddenly. He made the diagnosis of labyrinthine deafness of syphilitic origin, a diagnosis confirmed later by secondary symptoms. The author remarks upon the infrequency of this deafness during the secondary period. He insists upon the necessity of an early diagnosis, which is made easy by the fact that the deafness which precedes or which follows the secondary symptoms attacks almost exclusively the internal ear, and shows itself by a nearly absolute abolition of hearing power for the tuning-fork or watch by bone-conduction. The specialist is able thus to decide at once upon anti-syphilitic treatment, and to improve, if not to cure completely, a deafness which, left to itself, would become incurable.

PROCEEDINGS, *Wednesday, August 3.*

DRS. BRIEGER, VON STEIN, and DUNDAS GRANT opened a discussion on *The Diagnosis and Treatment of Suppuration of the Labyrinth.*

BRIEGER (Breslau): *Theory of Suppuration of the Labyrinth.*

The complete mastoid operation may lead to spontaneous cure of the labyrinthine suppuration. But in other cases, which are not rare, the suppuration, latent until the moment of operation, becomes manifest through it, and provokes a fatal attack of meningitis. If the radical operation is terminated in the presence of a suppurating labyrinth, the case may become more serious than it was before. *The indications for opening a diseased labyrinth* require to be ascertained by a greater experience under this condition. According to our present opinions opening the labyrinth appears to be indicated: in the case of acute suppurating otitis media; when in the course of acute otitis media serious troubles of equilibrium, with nystagmus and rapidly progressive deafness come on, together with a very marked change in the general condition (collapse, or rise of temperature); when in the presence of labyrinthine symptoms signs of meningitis appear; whatever may be the result of lumbar puncture. A reservation is made in the case of post-scarlatinal suppuration, in which, on account of the relative rarity of secondary fatal meningitis, it is allowable to wait. In the case of chronic suppurative otitis media; when after the complete operation, the operation wound being normal, serious troubles of

equilibrium at each change of posture appear; or these troubles, existing before the operation, persist without modification, or increase after a short improvement, and the nystagmus increases or changes its type. This indication becomes pressing if at the same time the result of the functional examination changes in a characteristic manner, and symptoms of meningitis are also present.

The labyrinth should be opened immediately after the radical mastoid operation if, with the symptoms described, lumbar puncture gives a positive result—that is to say, it shows the presence of pus-cells in the cerebro-spinal fluid.

In case of the obvious existence of fistulæ of the labyrinth: when after exposure of a fistula of the horizontal canal by the radical operation grave labyrinthine symptoms persist; when the presence of several fistulæ, clearly leading into the labyrinthine cavity, indicates the presence of extensive labyrinthine suppuration; when after laying open intra-cranial foci of suppuration (deep extra-dural abscesses and empyema of the saccus endolymphaticus, abscess of the cerebellum), their relation with the labyrinth is manifest.

The contra-indications for opening the labyrinth are of no importance when the diagnosis is exact. Operative opening of a normal labyrinth, in consequence of a mistaken diagnosis, is much less serious than accidental communication between the labyrinth and the cavities of the middle ear by a wound of the membrane of the fenestra during the mastoid operation. In the case of labyrinthine suppuration, injury of the facial nerve matters as little as the fate of the hearing power. Persistent facial paralysis can generally be avoided; the hearing power is lost even in cases not operated upon and cured spontaneously.

The co-existence of an intra-cranial complication is an additional reason for attacking the labyrinth. In suppurative meningitis of labyrinthine origin the opening of the labyrinth, with the other procedures against meningeal suppuration gives the only chances of recovery.

*The method of laying open the labyrinth.*—In the present state of our knowledge, as elimination of the focus of suppuration is impossible, the aim of treatment is the transformation of a closed labyrinthine suppuration (which is more or less dangerous, as it does not communicate, or only slightly by narrow fistulæ, with the middle ear) into an open suppuration of a more benign character. The opening into the labyrinth should be carried out so that the extraction of sequestra, cholesteatomata, etc., can be done as completely as possible.



When no fistulæ exist, the labyrinth is opened at the spot where communications between the middle ear and the labyrinth usually occur. Considering the part which disturbances of equilibrium play in the disease, the opening is generally begun at the horizontal canal. Most often, when a vestibular suppuration is recognised by this route, a larger opening into the vestibule must be made by excision of the stapes and enlargement of the fenestra of the vestibule.

Opening the semicircular canal alone is not enough, as anatomical examinations have shown, to insure drainage of the labyrinth into the middle ear. If labyrinthine symptoms do not disappear after opening the vestibule, and if functional examination demonstrates a more or less complete change in the cochlea, the latter must be opened through the promontory. If a fistula between the promontory and the cochlea exists, this channel must be followed. The danger of wounding the carotid can be avoided.

In case of a deep extra-dural abscess of the posterior wall of the petrous bone, and of abscess of the cerebellum, if their labyrinthine origin is recognised during the operation, the vestibule can be opened behind after having broken down the superior canal, and if necessary the inferior canal. Besides the danger of an injury of the superior petrosal sinus, the possibility of wounding the gulf of the jugular vein, if it lies high, must particularly be kept in mind.

The choice of the instrument (gouge or burr) for opening the labyrinth is indifferent. The use of adrenalin facilitates the recognition of the state of the labyrinthine wall, especially in the region of the window.

The treatment after the operation of opening the labyrinth does not differ from that in use after the radical operation. As long as drainage is necessary, the cavities of the labyrinth must be kept freely open (light plugging). If cholesteatomatous masses exist, an immediate grafting of the widely open labyrinthine cavities is allowable.

*Effects of the Operation.*—Healing, with gradual retrogression of the affection of the arachnoid cavity: sometimes temporary arrest even in the case of well-established suppurative meningitis. In the cases which get well the troubles of equilibrium slowly disappear, sometimes more slowly than the nystagmus which accompanies them. The hearing power is lost in the great majority of cases, either soon after the operation on the labyrinth or later on.

VOX STEIN (Moscow) :

From the cases of purulent labyrinthitis observed in his own clinique, the author has arrived at the following conclusions :

1. The acoustic tests of the hearing-power alone do not always denote the presence of a purulent affection of the labyrinth, because at present there is no certain acoustic method of diagnosing unilateral lesions, especially in children.

2. In all cases of purulent labyrinthitis, static or dynamic troubles are more or less pronounced in adults and children, even when the affection has a partial and superficial character.

3. We must distinguish paralabyrinthitis (purulent or otherwise), in which the process is localised in the osseous capsule, from perilabyrinthitis (purulent or otherwise), in which the pus or other exudate is shut up in the perilymphatic space, the osseous capsule being open or closed, and from endolabyrinthitis (purulent or otherwise), in which the pus or other exudate forms in the endolymphatic space.

The combination of these three modifications gives labyrinthitis (purulent or not) or pantalabyrinthitis.

4. In paralabyrinthitis the troubles of co-ordination do not appear ; they are more or less marked in peri-endo-labyrinthitis.

5. The assistance of surgery is more or less in relation with the subdivisions mentioned above. Unfortunately, it is very difficult, for want of symptoms, to determine beforehand the extent of the lesion. Necrosis of the labyrinth is shown always by labyrinthine disturbances.

6. Ablation of the bone of the necrosed labyrinth should be performed gradually and with care, especially in children, so as to avoid wounding the carotid artery.

In most cases of purulent endolabyrinthitis it is sufficient to open the vestibule, to curette lightly, to dust with iodoform, and to dress daily.

7. In perilabyrinthine affections, when the bony capsule is open, the membranous semicircular canals should not be opened unless one is sure of the presence of pus in the endolymphatic spaces.

DUNDAS GRANT (London) :

The author's "Résumé of Practical Deductions from Recent Knowledge of Suppuration of the Labyrinth" appeared in the August issue of the JOURNAL OF LARYNGOLOGY, RHINOLOGY, AND OTOTOLOGY.

POLITZER, A. (Vienna): *Upon the Pathological Changes of the Labyrinth in Chronic Suppuration of the Middle Ear.*

In this memoir a general exposition is given of the pathologic changes which are produced in the labyrinth in the course of serious suppurations of the middle ear. After a series of clinical observations and of histologic researches made on the same subjects, the author demonstrates that the pathological alterations in the labyrinth in consequence of chronic suppurative otitis are more frequent than until now has been believed. He considers that certain accepted opinions upon the functional hearing tests in chronic suppuration of the middle ear must be corrected.

PANSE, R. (Dresden): *Preparations and Original Drawings from Ten Cases of Suppuration of the Labyrinth.*

Once the infection was propagated from a meningitis to the acoustic nerve and the aqueductus cochleæ; four times from a suppuration in the tympanum to the oval and round windows; four times through the fenestra ovalis alone, and perhaps also in one of these cases through a fistula of a semicircular canal; twice through the lateral wall, and without doubt also by the fenestræ, for sequestra occupied the greater part of the labyrinthine wall.

These two cases recovered by the help of the radical operation after elimination of the sequestra; in one there was facial paralysis. One patient died from a concomitant pyæmia, another from abscess of the cerebellum due to suppuration of the acoustic nerve, six from meningitis propagated along the acoustic nerve, and, in one case, simultaneously by the aqueductus cochleæ, but never along the facial nerve.

MOURE, E. J. (Bordeaux): *Cinematographic Pictures of Patients affected with Labyrinthitis.*

The author caused cinematographic pictures to be made of a certain number of patients with labyrinthine affections, so as to show the staggering or tottering gait according to the part of the internal ear which was affected. These were shown to the members of the Congress.

ESCAT (Toulouse): *Three Cases of Necrosis of the Cochlea terminating by Spontaneous Elimination.*

The first case was that of a man, aged twenty-nine, with old-standing otorrhœa; the cochlea, observed in the meatus, was re-

moved with forceps. The patient recovered rapidly, but remained quite deaf on the diseased side.

The second case was a woman, aged thirty-three, with otorrhœa since infancy; a portion of the cochlea was eliminated through the meatus; cure of the otorrhœa occurred only after some years. There was absolute deafness on the affected side.

The third case was one of special interest. A man, aged twenty-one, during an attack of scarlatina, showed all the signs of acute labyrinthitis, with absolute integrity of the tympanum, proved by examination with the mirror. After secondary and late suppuration of the tympanum, the necrosed cochlea was eliminated entire and came away by syringing. In this case it appeared that the necrosis was secondary to a septic thrombosis of the cochlear artery proper, of which the local distribution has been demonstrated by Siebenmann. It is thus clear how the vestibule and semicircular canals supplied by the other branches of the common cochlear artery had escaped, and only gave rise to slight and transitory disturbances of equilibrium.

This case deserves to be compared with analogous cases reported by Cristinneck, Kretschmann, and Trautmann, cited in "The Pathological Anatomy of the Ear," by Steinbrügge.

CHAVASSE (Paris): *Extra-dural Abscess at a Distance from its Otitic Origin. Spontaneous Opening through the Parietal Bone.*

The patient, aged twenty-three, came for treatment with a large mastoido-temporal abscess on the left side following a sub-acute otitis media without suppuration. The pus contained a streptococcus. Five months later the operation wound was still open and was curetted. More than two months after this a fluctuating point was observed behind the parietal prominence. A subperiosteal collection of pus was found, communicating by a small fistula with a larger extradural abscess, which was opened. Recovery was rapid.

The author attributes the origin of the abscess to a localised thrombo-phlebitis of a small meningeal vessel.

LERMOYEZ and BELLIN (Paris): *Contribution to the Surgical Cure of Acute Otagenous Meningitis.*

The authors report two cases of radical cure of general meningitis of otitic origin obtained by associating the mastoid operation with lumbar puncture.

The first case was that of a girl, aged nineteen, with old



otorrhœa, who after a month of vague general symptoms suddenly presented the symptoms of acute general meningitis—intense headache, stiffness of the neck, facial paralysis, and Koernig's sign. Lumbar puncture gave lymphocytes 58 per cent., polynuclear cells 40 per cent. Operation on the petrous bone was practised without delay. There was extensive caries, and the labyrinthine wall was necrosed; the dura mater was very granular. The following day the temperature fell to normal. Koernig's sign persisted for several days. A week later a fresh lumbar puncture showed lymphocytes very abundant, but hardly 1 per cent. of polynuclear cells. A fortnight later the spinal fluid was normal. Local cure was slow owing to the presence of a sequestrum of the labyrinth, which came away spontaneously. After eighteen months the cure remained complete.

The second case was also that of a girl, aged nineteen, with chronic otorrhœa since childhood. After a chill acute symptoms of Bezold's mastoiditis appeared, without intra-cranial complication. A radical operation was performed; the mastoid was full of thick pus, the dura mater healthy. Ten days after the operation signs of meningitis suddenly appeared—intense headache, stiffness of the neck, vomiting; temperature 102° F. Lumbar puncture gave a very turbid liquid which showed an intense polynucleosis. The dura was incised, but no pus was found under it or in the temporal lobe. The signs of meningitis disappeared, but recurred after a week. A new lumbar puncture gave a fluid less turbid but flowing out under pressure, fewer polynuclear cells, but abundant lymphocytes. Improvement occurred. The following week a second relapse. Violent headache, stiff neck, and inequality of the pupils. The cerebro-spinal fluid, however, became normal, and from this time improvement ensued. The fever fell gradually, and the headache became intermittent, but the inequality of the pupils persisted a long time. A sequestrum of the labyrinth eventually came away, and after several months the cure was complete.

MOURET, J. (Montpellier): *Upon a Direct Channel of Communication between the Mastoid Antrum and the Posterior Surface of the Petrous Bone.*

In the new-born infant, before the petrous bone is fully developed, a hollow exists on the posterior surface of the petrous bone situated under the arch of the superior semicircular canal. The bottom of the hollow is the inner wall of the antrum. Sections of this part of the adult petrous bone show a fine canal passing

from the fossa subarcuata to the antrum, which is a vestige of the infantile condition. This petro-mastoid canal is one of the most important channels of infection from the antrum.

LAFITE-DUPONT, J. A. (Bordeaux): *The Cells of the Middle Ear: their greatest Extension.*

The cells should be studied upon the fresh subject and not upon the skeleton, in order to distinguish between pneumatic and diploetic cavities. The author described at length the anatomical disposition of the cells.

CHICHELE NOURSE.

(*To be continued.*)

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## SOCIETIES' PROCEEDINGS.

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### BRITISH MEDICAL ASSOCIATION.

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*Seventy-second Annual Meeting, held at Oxford, July 26, 27, 28, and 29, 1904.*

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#### PROCEEDINGS OF THE SECTION OF LARYNGOLOGY AND OTOTOLOGY.

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*President, CHARTERS SYMONDS, F.R.C.S.*

THE Section met in the Class Room at the Museum, and was very largely attended. The President opened the proceedings with the following brief address:

Allow me in the first place to welcome all to this Section. Our visitors from America, from Canada, and from Paris and Buda-Pesth, I welcome in the name of the Association, and hope they will join in the discussions.

The large attendance seen to-day justifies, if justification were needed, the existence of the special Section. It is, perhaps, not inappropriate that one chiefly practising and teaching general surgery should occasionally preside over its deliberations. Recognising as I have for nearly twenty years the importance of the special study of diseases of the nose and throat, I am jealous of the reputation of this branch of the Section and of the members who compose it. The aural department has long been well established. The addition of a clinic in laryngology and rhinology at the hospitals to which medical schools are attached has

undoubtedly led to a great advance in the teaching of this special branch of medicine. To me fell the honour of creating such a clinic at Guy's Hospital, now some eighteen years ago. The eagerness with which the leading students seek the appointments is the best proof of its value, and to-day in that department alone some 1500 new cases attend annually, and beds are also allotted in the hospital. As one's own knowledge widened, as the literature of the subject increased, it became impossible to keep pace with all that was being done by the increasing number of workers, and at the same time carry on the operative and teaching duties of a large hospital and school. Nor do I think it possible for anyone to accomplish both. I hope each of the large hospitals will see the wisdom of appointing a man who will devote himself exclusively to the subject. And yet not exclusively, for pure specialism as a rule tends to narrowness. I would see him hold some minor post in general pathology or in general medicine or surgery, in order to control his observations, and keep wide the horizon.

"There must," said Dr. Billings, "be specialities and specialists, and the result will be good and evil, but the evils fall largely upon those specialists who have an insufficient general education who attempt to construct the pyramid of their knowledge with the small end as a foundation."

There can be no question that the only way to check the evil of specialism is to bring to its practice a wide general education, and a training in the general subject of which it forms a part.

If this were always considered essential, there would be less tendency to hasty publication, to claims for priority, and even notoriety, and to the confusion that must result from undue haste.

The observation is apt to be too deeply impressed with the mark of the observer. "In truth" (said Paget) "the fault of specialism is not in narrowness, but in shallowness, in the belief in self-sufficiency with which it is apt to be associated. If the field of any speciality be narrow, it can be dug deeply. In science as in mining a very narrow shaft, if only it be carried deep enough, may reach the richest stores of wealth, and find use for all the appliances of scientific art."

Nothing better expresses the evil and the good than these words of one of our greatest and wisest thinkers in medicine.

The facts gained by such special search must, when brought to the surface, be submitted to the test of general knowledge, and if the expert do not possess this knowledge then the evil is likely to prevail. So in the special branches into which the practitioners of medicine are being divided, there arises, it seems to me, a

greater need for the presence and influence of the general practitioner, whose wider knowledge of his patients' ailments must prove of invaluable assistance to any special worker. Too much are the public neglecting this all-important association. As Paget said again: "In all research it is well that each apparent fact should be observed by many; for things are not what they appear to each one's mind. In that which each man believes that he observes there is something of himself; and for certainty, even on matters of fact, we often need the agreement of many minds, that the personal element of each may be counteracted."

This, then, is the object of our meeting to-day, to hear the records of research, and to criticise the marshalling of facts and the deductions drawn from them. Thus will our range of work be widened, our interest deepened, our appreciation of the views of others will be clearer for the personal acquaintance, and our respect and regard for each other deepened.

To all it is not given to rise to the highest in any branch. To some manipulative dexterity comes naturally, and other eyes and hands can never reach the best performances. Let it be our aim to see that the good of our speciality shall prevail; let us ever bear in mind the dignity and responsibility of the position we assume. At the same time, let us not arrogate to ourselves exclusive knowledge, or individually claim that what we cannot accomplish no other need attempt. Let us in our progress remember the words of one of Oxford's greatest sons—Matthew Arnold:

"Children of men! not that your age excel  
In pride of life the ages of your sires,  
But that ye think clear, feel deep, bear fruit well,  
The Friend of Man desires."

A discussion was opened by Professor Urban Pritchard (London) and Dr. Thomas Barr (Glasgow) on—

*The Treatment of Non-suppurative Disease of the Middle Ear.*

A very complete *résumé* of the introductory paper by Professor Urban Pritchard appeared in the August issue of this Journal.

Dr. THOMAS BARR, in introducing the subject, said: Exactly ten years ago I had the honour, in conjunction with Mr. George P. Field, of introducing a discussion at the Bristol meeting on the prognosis of non-suppurative otitis media. The discussion to-day may be regarded as complementary to the one in Bristol. I shall not attempt to traverse the whole field included in the title, as this



has been done by my friend Dr. Pritchard, but shall limit my remarks to the non-exudative or dry forms of the disease, whatever their origin may have been. We are probably all pretty much agreed as to the treatment of the acute inflammatory and exudative forms. It is essentially satisfactory, and in some forms, such as the exudative affections of childhood, associated with post-nasal adenoids, the results of treatment are often brilliant.

*The nature of the dry forms.*—The dry forms of middle-ear inflammation are by far the most frequent, and are the cases for which otologists everywhere eagerly and earnestly desire improved methods of treatment; they are, therefore, well fitted for investigation and discussion. We have here to deal with a more difficult problem than in the exudative forms. There are usually changes and products in the middle ear which may have originated long before, sometimes during early childhood, in acute inflammation, in simple exudative catarrh, or, worst of all, in gradual and scarcely perceptible changes of a dry nature from the beginning. When the patient comes before us the tympanic membrane may present nothing abnormal, as in the sclerotic form, or structural changes may be apparent to the eye, such as retraction, opacity, atrophy, or calcareous deposit. The Eustachian tubes may be more or less obstructed, or, on the other hand, they may be unduly permeable. The changes on the drum-head are in many cases not really the cause of the hearing defect. This was forcibly brought under my notice some years ago, when I had occasion to examine a large number of men of different occupations—boiler-makers, rivetters, iron-moulders, postmen—and found a considerable number presenting such and other abnormalities, while *showing no hearing defect*. Unfortunately, the changes actually causing the deafness are usually on the other side of the drum-head, and we may have in any given case but little means of determining their exact nature. We assume that there are adhesions or bands binding together structures which should be free and separate, or that there are stiffenings, rigidities, or immobilities of the ossicles; but the scientific character of the treatment is faulty because of the deficiency of our knowledge of the anatomical changes existing in any given tympanum, and efforts of treatment are on that account bound to be often empirical and to some extent experimental. As in all more or less incurable affections of the human body, the field of treatment is large, but not proportionately fruitful. It is manipulative, operative, medicinal, hygienic, and climatic.

*Value of treatment by inflation.*—Amidst the diversity of opinion regarding the value of the different methods of treatment all otolo-

gists are agreed that *inflation* in some form or another, but especially in the form of politzerisation, is one of the most valuable. With such changes as fixation of the ossicles, especially of the stapes at its fenestra, it may be asked, What can be the good of inflation? Not much, if we were perfectly sure in any given case that such changes were really and only present. We cannot, however, exclude the possibility that there are yielding adhesions, tubal catarrh, or swelling or secretion in the tympanum upon which inflation may have a good effect. In the use of Politzer's bag it is important to know if the air-pressure reaches the walls of the tympanic cavity, and I rely not only on auscultation, but also on inspection of the membrane during the compression of the bag. I find not unfrequently that while no sound is heard through the auscultation tube or by the patient, inspection shows, by the movement of the membrane outwards, that the inflation has been effective. With good distension outwards, without any improvement in hearing, the prospects are unfavourable, as indicating stiffening and binding processes.

In view of the fact that we can rarely determine the precise condition of the intra-tympanic structures in any given case, we are not often justified in excluding the possibility of doing good, until we have applied the test of treatment, especially of effective inflation. I have seen cases where *à priori* one would not have expected improvement—cases in which the relatively weak bone-conduction, the long duration and gradual progress, and the slight objective changes, seemed to preclude the chance of doing good, and yet substantial improvement has been achieved by inflation; while, on the other hand, I have seen notable changes on the tympanic membrane, with good bone-conduction, where nothing has been gained by inflation. As to how far the test of treatment may be pushed, there is room for difference of opinion. With absolutely no result, after a few effective inflations, most of us would hesitate to push it further and regard the case as one of fixation of the stapes, or an impaired nerve. Any increase in the deafness or in the intensity of the subjective sounds would call for an immediate halt, whereas improvement, even although comparatively slight, but, of course, more so if marked, would encourage the continuance of inflation. I agree with Politzer that inflation should not be practised too frequently, seldom more so than every second or third day; too prolonged treatment is bad. After three or four weeks there should be a pause of one, two, or three months, and in some cases short courses of such treatment may be required at intervals, during the whole of the person's life.

*Inflation by patient or friend.*—Patients or their friends can usually be taught to inflate efficiently. I never, however, trust to verbal directions, but make sure by practical instruction and from my own observations, repeated more than once, that the patient or friend can really impel the air into the tympanum—only then do I entrust him with the bag. How often do we find that patients have been working with the bag for weeks, or even months, with no chance of doing good because of some defect, perhaps the omission of such an essential part of the process as closing the nostrils. Definite directions, as to the frequency and duration of the treatment, should be given, and I never omit to warn the patient that, if any increase in the deafness or subjective sounds be observed, the fact should be immediately reported. Otherwise many patients, in their desire to be faithful to the doctor's instructions, will continue the treatment, in spite of unfavourable effects.

*The Valsalva experiment.*—From the statements of patients, one must conclude that this method is frequently recommended, especially by general practitioners. Very seldom do I advise it in non-suppurative disease, because the patient is either unable to inflate his tympanum in this way, or if he succeeds great mischief is done by the abuse of it; it is not uncommon to be told by a patient that he repeats it before every interview, probably twenty or thirty times in a day, acquiring such dexterity that no one observes the manœuvre. As we know, the improvement in hearing becomes less and less, and shorter and shorter, with gradually increasing damage to the tympanum. Still further the strenuous efforts sometimes employed may have disastrous effects, especially in elderly persons, upon the cerebral circulation, and I have known a person to fall unconscious to the ground in the act of trying to inflate. Efforts to force vapours in this way through the Eustachian tube into the tympanum are, I am sure, generally futile.

Probably the best results from inflation are generally attained by the short impact of air yielded by Politzer's method, and I generally limit catheterization to the cases in which a stricture exists in the Eustachian tube, or for the introduction of solutions or vapours into the middle ear.

*Obstruction of the Eustachian tube.*—In my experience patients suffering from deafness, of whatever nature, are often told by their medical advisers that it is due to "an obstruction in the passage between the nose and the ear." The practitioner is probably surprised to learn that serious loss of hearing, from middle-ear disease, is quite consistent with a freely or even over

permeable Eustachian tube. I am sometimes inclined to wish that the tube were obstructed, as offering a more favourable condition for doing good by treatment, especially if the obstruction were of the nature of tubal catarrh, near the pharyngeal orifice. This is no doubt common in these cases, and explains the fluctuations in the hearing often complained of as well as the improvement effected in many cases by inflation and by applications introduced through the catheter into the Eustachian tube. There is a pretty general consensus of opinion that such applications are useful, although some are inclined to think that the accompanying inflation accounts for the therapeutic effect, but this I cannot agree with. My favourite applications are paroleine solutions of iodine, menthol, camphor, cocaine, or adrenaline, introduced through the Eustachian catheter into the tube by means of an Oppenheimer's nebulizer. Sometimes I introduce the catheter through the *opposite* nasal passage, hook it round the vomer, and direct the nebula straight upon the mouth of the Eustachian tube. After this, inflation is sometimes more effective. With no evidence of tubal catarrh I prefer the injection of solutions through the catheter, such as bicarbonate of soda or pilocarpine, or fluid vaseline, with the object of bringing them in contact with the walls of the tympanic cavity. The effects of these are of course mixed up with the effects of inflation. The treatment of organic stricture is in my experience very unsatisfactory, and the attempt to forcibly dilate such a stricture by means of a bougie seldom leads to a permanently good result. Regarding electrolysis of the tube, I have had no experience, and should like to hear the opinion of those gentlemen who may have had experience of this agent.

*Nasal Treatment.*—The propriety of operative nasal treatment in these forms of middle-ear disease has given rise to very pronounced divergence of opinion, and may be almost regarded as a burning question in our speciality. Most of us probably approve of operating upon, or otherwise removing, marked obstructions in the nasal channels. There can be no doubt that such obstructions exercise an injurious influence upon the tympano-Eustachian apparatus, first by the effect of suction during the act of swallowing, and, second, by inducing persistent or recurrent swellings of the Eustachian tube. Hence we are probably pretty well agreed as to the propriety of operative or other treatment for the removal of marked hypertrophies in the nasal passages, such as enlargement of the inferior turbinated body, or very pronounced septal ridges, or deflections causing considerable sténosis. Also when post-nasal



adenoids exist, most of us would approve of operating, without, however, expecting such brilliant results as in the case of the exudative catarrhs. Fortunately, the dry forms of middle-ear deafness are comparatively uncommon in childhood. On the other hand, the existence of a small spur or knob on the septum, interfering very little or none at all with nasal breathing, and producing no special tendency to catarrhal attacks, may wisely be ignored. It is to be remembered that intra-nasal operations occasionally seem to aggravate the deafness, perhaps through nervous shock, or from the entrance of blood into the Eustachian tube. There is probably unanimity as to the propriety of treating post-nasal catarrhs by the recognised methods, although it is not to be forgotten that these methods, such as the use of the nasal douche, may, in the absence of careful precautions, be productive of much harm.

*Pneumatic massage of the tympanum.*—Patients sometimes tell us that they find relief by pressing the tragus with the finger into the meatus, causing a rapid in-and-out movement, producing alternate condensation and rarefaction of the air and exposing the tympanum to rapid air vibration. The more effective employment of this by suitable apparatus is, I believe, of very considerable value, especially when accompanied by inflation. We are all familiar with Siegle's pneumatic speculum and Delstanche's masseur, for which he was awarded the Lenval prize. By these instruments air-massage of the tympanum may be effected. But, in order to increase and regulate the rapidity of the strokes and relieve the hand of the operator, an electro-motor is now used by many. The one that I am in the habit of employing consists of a suitable piston and cylinder attached to a Siegle's speculum propelled by an electro-motor, the current being derived from a six-voltage storage battery. This is capable of producing up to 600 strokes a minute without any unpleasantness to the patient, who frequently expresses a distinct feeling of clearness and freedom from the tinnitus after from one to two minutes of its use. I generally adjust the piston for a stroke of  $\frac{1}{4}$  of an inch, but if the maximum speed is required, the stroke is shortened to  $\frac{1}{8}$  of an inch. With long strokes there should be comparative slowness; with very short strokes, such as  $\frac{1}{16}$  of an inch, great rapidity is permissible; the rapid movement and the short stroke are, however, more adapted for labyrinthine affections. One disadvantage of the high speed is the noise produced by the machine, and a noiseless machine is a desideratum. There is difference of opinion as to the time of each *séance* of treatment, and the frequency of repetition,

as well as the duration of the course. On these I think further investigation is required. My own method is to continue it from one minute to one minute and a half at each sitting, repeating the process twice a week, the duration of the treatment being dependent on the results. But I have known instances where a good effect was produced by repeating the treatment twice a day, after less frequent use had yielded no result. Some continental otologists go the length of a 30 minutes application, with daily repetitions.

My only experience of the so-called phone-massage has been with tuning-forks, which, undoubtedly, in many cases, relieve tinnitus, but only for a very short time.

Lucae's pressure probe for application to the short process of the malleus, with Lester's addition of an electric motor, is, I think, rarely used in this country, and I have had personally no experience of it.

*Friction or massage behind the ear.*—Another hint derived from patients is the use of friction, which they often say does them good when applied behind and below the ear. I am in the habit of advising friction with the aid of a stimulating ointment, such as camphor, oil of pepper, mint, and vaseline, or an iodine preparation, applied behind and below the ear, employing the pressure downwards. Whatever the explanation, many persons seem to think that this does them good. Vesication seems to have a good effect at times, especially in the relief of tinnitus, and perhaps we might employ it oftener with advantage. Local blood-letting has been suggested, but of this I have had no experience.

*Operations on the tympanum.*—In regard to the value of these, there is remarkable diversity of opinion, as shown by the result of the investigation carried out by Mr. Arthur H. Cheate seven years ago and reported in the *Practitioner* in 1897. Mr. Cheate's most praiseworthy object was "to collect, contrast and compare the views held on this subject by some of the leading aurists of the world." The results showed that otologists of this country were for the most part distinctly unfavourable to these operations. Only a few expressed a very mild and restricted approval. The American aurists were much warmer, some almost enthusiastic, in their advocacy of these operations, such as Sexton, Dench, and Jack; while Roose and Knapp expressed themselves as decidedly unfavourable. Continental authorities expressed for the most part a cautious approval in regard to certain of the operations. These operations include, in the order of their importance, myringectomy, or the production of an artificial opening in the membrane, either

by a simple incision or by means of the galvano-cautery. This, as well as tenotomy of the tensor tympani, is a comparatively simple operation, and may be regarded as fairly free from the risk of doing harm. But it is otherwise when, with our present knowledge, we proceed to the removal of the whole tympanic membrane, including the malleus or malleus and incus, or when we expose the region of the stapes, and try to separate adhesions between its crura and the walls of its niche (so-called synechotomy), or attempt to mobilise the stapes and divide its incudal articulation, or, lastly, remove the stapes itself (stapedectomy). It may be said in the first place that, with a narrow meatus, some of these operations are well-nigh impossible, unless after resection of the membrano-cartilaginous meatus or the radical mastoid operation, while, in the absence of an exact knowledge of the pathological conditions present in the tympanum, the operator is in the position of one groping in the dark. That an artificial perforation with the galvanic cantery may in some cases improve the hearing or relieve tinnitus, at least temporarily, has been my own experience as well as that of others, and if such an opening could be rendered permanent—a desideratum still unsatisfied—there is here a distinct possibility of doing permanent good. But when we proceed to the other and deeper operative measures, we are in danger of injuring rather than improving the hearing, and by producing a purulent condition we may even imperil life. Mr. Cheatle says that this risk of suppuration should not deter us, if we operate by antiseptic methods, but is it not problematic whether asepsis or antiseptis is possible in the presence of an open Eustachian tube? On the whole the experience of most observers is that, while improvement in the hearing or relief of the tinnitus not unfrequently follows operation, such improvement is rarely permanent. To what extent opinion may be modified by improvements in the methods of operating, or in the means of determining the exact pathological conditions present, the near future will, I hope, show. Of course no one would resort to such operations before exhausting other methods of treatment, and then only in cases of extreme deafness or intolerable tinnitus, at the same time taking care to explain to the patient the prospects, and especially the possibility of being made worse.

*Electrical treatment.*—I remember at an early period of my otological career electrical treatment was for a time greatly in vogue, and, both with the constant and the Faradic current, I treated many patients suffering from the conditions we are now discussing. Mainly, I suppose, from the feeling that the results

were not commensurate with the trouble to patient and doctor, the electrical treatment gradually fell into abeyance. It has been again revived in the form of the high-frequency currents, and from past experience, it is not surprising that many of us should feel sceptical of its value. As a remedy for defective hearing, these high-frequency currents were first suggested by Dr. J. C. Ferguson's paper in the *British Medical Journal* (October 24, 1903), which, however, gave us very little information as to the cases suitable for the treatment. In Glasgow several of us have been putting it to the test during the past year, and my colleague, Dr. J. G. Connal, has already published the results of thirty-two cases treated in this manner. Curiously, the best results reported by Dr. Connal have been in sclerosis of the middle ear (gradually advancing and severe deafness, with normal-looking tympanic membranes, permeable Eustachian tubes, and relatively good bone conduction). No doubt the number of these, namely five cases, women between twenty and thirty years of age, has been small, but in all of them Dr. Connal reports appreciable improvement, both in the experience of the patient and by his own tests, not only in the hearing power, but in the relief of tinnitus. I saw two of these patients, and they expressed themselves as very much improved. In fourteen cases of what he terms chronic catarrh, without labyrinthine involvement, there seemed to be little, if any, improvement in the hearing, certainly not as appreciated by the tests applied, but in ten of them who suffered from tinnitus, eight reported improvement in that respect. My own experience has been limited to about a dozen cases, and, while it is perhaps premature to express an opinion, the results have not yet been so encouraging as those reported by Dr. Connal. Each of my patients had been previously treated in a thorough manner by other recognised remedies, and the hearing power had been carefully tested before beginning electrical treatment. In no one has the watch test shown more than a trifling improvement, but several expressed the conviction that they heard speech somewhat better. I am bound to say, however, that in these twelve cases there have not been anything like striking results. Still, as Dr. Connal is a competent and careful observer, I shall certainly give this mode further trial, especially in view of the somewhat remarkable results in his five cases of sclerosis. Dr. Walker Downie has also been testing the value of the high-frequency currents, and we shall be glad to learn with what results.

The treatment is pretty troublesome, as each of the patients received from twenty to forty applications, of a quarter of an hour's



duration, and at intervals of from four to six times a week. The currents are employed in two ways—first, by means of the effluve taken from the resonator, and applied to the side of the head. The multiple point electrode is held as near to the patient as possible, without producing sparks, and at the same time another electrode in the shape of a white metal disc is pressed on the other side of the head. The other method is by means of thin metal rods covered with glass tubes, which are closed at the distal end and mounted on suitable handles. They are attached one to each end of the high-frequency solenoid, and introduced into the external meatus. In this way the current is more completely concentrated on the ear than by the first method. The treatment is entirely empirical and to what extent the effects are due to the general or local influence of the currents, or are psychical impressions, further experience is required to decide.

*General Treatment.*—The necessary limitations of this paper will not admit of my enlarging upon the medical, hygienic, and climatic treatment, which Dr. Pritchard has dealt with sufficiently fully. In every case general treatment requires careful consideration. The indications are, of course, clear when the ear condition is associated with anæmia, tuberculosis, specific disease, gout, rheumatism, or neurasthenia. Have medicines taken internally any special effect upon the morbid processes in the middle ear? Politzer believes that iodide of potassium, in large doses, in the early stage of oto-sclerosis, checks the ossifying process. Others believe that salicylic acid acts beneficially, presumably in rheumatic persons. Phosphorus, in considerable doses, continued over a great length of time, has been suggested of late by Siebenmann, in osseous ankylosis of the stapes. Thyroid extract has had its exponents. Of the value of these I have no personal experience upon which to base an opinion, but would gladly hear the opinions of others who may have had such experience. For the relief of special symptoms, such as vertigo and tinnitus, special remedies are suggested and employed, such as the bromine compounds, including hydrobromic acid, also strychnine, etc. There is no doubt that a thoughtful and judicious selection of internal remedies may often prove useful, and some of us are, perhaps, apt to overlook the value of medicinal remedies.

*Suggestions for further Investigation.*—In conclusion, gentlemen, allow me to suggest some of the directions in which we might hope to add to our power of dealing with those intractable cases. First, in order to obtain greater scientific accuracy as to the value of methods of treatment, committees of investigation might be

appointed, from time to time, and by a well-defined and pre-arranged plan of working, determine, if possible, the true value of individual methods of treatment—such, for example, as the so-called pneumatic massage of the tympanum, the influence of nasal treatment, the value of applications introduced through the catheter, the value of tympanic operations, etc. What we much need is greater precision of knowledge as to the actual value of remedies; second, to ascertain the opinions and practice of the leading authorities throughout the world on special forms of treatment, on a plan similar to that pursued by Mr. Cheatle, already referred to; and, thirdly, as it is of great importance to be able to differentiate more clearly the pathological conditions present in the ear in these cases, we should arrange for more frequent and thorough dissections of the organs of hearing of persons who have suffered from these affections. It would be essential that the specimens should be accompanied by careful clinical records as to the character of the hearing, the state of the bone-conduction, as tested by tuning-forks, the aural history, and the diagnosis during life. On these lines we might hope for more decided progress in the future than has been in the past in the treatment of these very common, though intractable, cases.

In the discussion which followed—

Dr. ADOLPH BRONNER (Bradford) expressed himself opposed to the use of Politzer's bag on the ground that it was not possible to obtain with it uniformity of air pressure, and he considered the practice of allowing patients to use the bag should be condemned. He was in favour of constitutional as well as local treatment, and in the matter of the treatment of nasal obstruction, as a cause of the deafness, he considered that there was room for charity and mutual concessions.

Dr. MARCEL NATIER (Paris) spoke on the physiological re-education of the hearing power by means of tuning-forks, and demonstrated a series of diagrams illustrating this method of treatment.

Dr. WALKER DOWNIE (Glasgow) was in favour of treating adhesion of ossicles by means of Valsalva's method of inflation. He preferred a nebuliser before Politzer's bag. He had seen but little good result from treatment with high-frequency currents; out of a dozen cases treated for him, in only one had improvement taken place, after daily applications for fifteen minutes, extending over six months—a very serious tax upon the patient. He attached importance to improving the patient's general health.

Mr. F. MARSH (Birmingham) urged the removal of any nasal

obstruction interfering with free drainage and free air-way. He had seen more harm than good result from Valsalva's method, and his experience of treatment by high-frequency currents was also unfavourable. He recommended the use of oily injections.

Dr. W. MILLIGAN (Manchester) considered that otology should be made a compulsory subject in the medical curriculum, and that more work at the pathology of the subject was required. Physiological rest of the ear was of value in middle-ear catarrh; seaside air, in his experience, was injurious to cases; high altitudes were beneficial. He was not so pessimistic about the value of operative treatment. Patients he had observed under treatment with high-frequency currents had become rather worse than better.

Dr. HEMINGTON PEGLER (London) was in favour of leaving the fluid in the tympanic cavity in exudative cases to be absorbed, and of not doing a paracentesis. The diagnosis was at times uncertain, the condition being a mixed one; and the neurasthenic element had to be excluded in applying the tuning-fork test. He was in favour of compressed-air treatment and the removal of nasal obstruction.

Dr. SCANES SPICER (London) spoke with reference to nasal obstruction as a factor in the ætiology and in favour of its removal.

Dr. H. SMURTHWAITE (Newcastle) expressed himself in agreement with the previous speaker with regard to the frequency of nasal obstruction as a factor in the disease.

Mr. E. B. WAGGETT (London) emphasised the importance of differentiating a primary oto-sclerosis or sclerotic condition of the middle ear at the patient's first visit. He was in favour of the education of any hearing power that might be left.

Dr. C. E. SHAW (Belfast) regarded the vibration treatment as worse than useless; treatment in the earlier stages was most essential.

Mr. C. H. FAGGE (London) considered that more definite knowledge of the pathology of the subject and of definite differential diagnosis were required. He was opposed to patients being allowed to use Politzer's bag.

Mr. W. HILL (London) advised Delstanche's masseur for the relief of tinnitus and for improving the hearing.

Mr. A. J. BRADY (Sydney, N.S.W.) considered that operative measures at times were beneficial, and referred to a case in which hearing was improved by the removal of the drum and ossicles.

Dr. J. E. NEWCOMB (New York) referred to the treatment by electrolysis; and said that in New York the younger practitioners

used it and recorded good results, but the senior men had left this method of treatment entirely alone.

Dr. JOBSON HORNE (London) expressed the hope that, as the outcome of the discussion, Dr. Barr's suggestions for the scientific investigation of the subject would be adopted and at an early date. Dr. Horne was fully aware of the obvious difficulties, but one case completely worked out, he said, would be of greater help than a mass of empirical and experimental treatment.

The PRESIDENT, in summing up the discussion, congratulated the section upon the interesting observations the subject selected had elicited, and he also endorsed Dr. Barr's suggestions. The openers of the discussion briefly replied.

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### FIFTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

IN our June issue we noticed the first number of the *Journal of the Fifteenth International Congress of Medicine*, to be held in Lisbon on April 19—26, 1906. We have now received the second and third numbers. They give a report of the most recent arrangements and of the more important resolutions of the Central Committee.

In the Section of Laryngology, Rhinology, Otology, and Stomatology the following subjects have been selected for official reports:

1. Study of the action of foreign bodies in the ear, and of vegetations in the naso-pharynx, in inducing epilepsy.
  2. The importance of maladies of the resonance chambers for the vocalist, and their treatment.
  3. The different forms of suppuration of the maxillary sinus.
  4. Intra-cranial complications of sinusitis of the face.
  5. The prothetic injections of paraffin in rhinology.
  6. The differential diagnosis of tuberculous, syphilitic, and cancerous disease of the larynx.
  7. The choice of anæsthetics in dental extractions.
  8. The treatment of alveolar pyorrhœa.
  9. The determination of the pathogenic agent of dental caries.
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## Abstracts.

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### NOSE AND ACCESSORY SINUSES.

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**Melzi, Urbano** (Milan).—*Primary Tuberculous Ulceration of the Inferior Turbinate*. "Archives Inter. de Laryngologie," etc., July—August, 1904.

The author reviews ninety recorded cases of nasal tuberculosis from 1853 to the present day, and classifies them as follows: 62 were granular, 26 were ulcerated, 2 had the bones affected.

In nineteen of these cases the infection was primary, and of these five were ulcerous; four of them were localised in the nasal septum; the fifth attacked the inferior turbinate.

The author quotes a case which came under his own observation, and in which the diagnosis of hypertrophic rhinitis seemed correct until the operation proved it wrong.

The patient was a young girl of twenty, with complete blocking of the nostrils owing to the enlarged turbinates. The nasal mucous membrane was very pale.

On removing entire the inferior turbinate in the right side nothing extraordinary was noticed, but on removing that on the left side an ulcer was detected in its inner surface of a dirty grey colour, irregular edges, and with numerous nodules scattered round it. The patient made a good recovery.

A microscopic examination of the sections of the turbinate revealed numerous small round cells, giant cells irregularly disposed, also some oval or lemon-shaped cells, some with one nucleus, others with several, but no Koch's bacilli.

The author considers this a case of primary tuberculosis of the inferior turbinate, as there were no traces of the disease elsewhere.

The patient has since married and had a healthy child.

*Anthony McCall.*

**Goodale, J. L.** (Boston).—*A Contribution to the Study of the Secreting Mechanism of the Nose*. "Boston Med. and Surg. Journ.," September 1, 1904.

The author calls attention to the two arrangements in the nasal mucosa for producing the nasal fluid, viz. the glands and the inter-cellular epithelial spaces of the underlying basement membrane. He then points out the changes produced in the glands of the mucous membrane, and in the canals of the basement membrane, in different pathological conditions, such as chronic inflammations with increased secretion, chronic atrophic inflammations, and vasomotor rhinitis. The first of these show increased activity of the mucous glands, the second show a complete disappearance of the canals of the basement membrane, while the mucous and serous glands show a much diminished, but still distinct, degree of activity. In vasomotor rhinitis is found a striking increase in the looseness of structure of the epithelium, and in the number and size of the canals of the basement membrane—an alteration distinctly out of proportion to the moderate increase in the mucous and serous glands.

*Macleod Yearsley.*

## EAR.

**Max Scheier** (Berlin).—*A Wound of the Tympanum.* "Archives Inter. de Laryngologie," etc., July—August, 1904.

The author records a case where his patient (a lady), in cleaning her ears with a hairpin and a towel, slipped the hairpin through a hole in the material and inflicted a wound in her ear. She was immediately seized with giddiness and a loud buzzing in her head. After a couple of hours the giddiness passed off, but the ringing noise persisted.

On examination the membrum tympanum could not be clearly seen owing to the presence of some foreign body; on removing this it was found to be the anvil covered with blood-clot and some little shreds of skin; the bone itself was quite healthy.

The wound was washed and treated with antiseptic gauze; the discharge was very little and only of a serous quality. In about ten days the hearing began to come back; five months after the patient had still slight buzzing and could only hear the ordinary voice at 3 metres.

Anthony McCall.

**Meniere, E.**—*A Living Animal in the Ear.* "Archives Inter. de Laryngologie," etc., July—August, 1904.

Dr. Ménière records a case where a "mite" had entered a lady's ear during her sleep.

Spasms of pain resulted, so severe as to cause her to visit him at once.

An otoscopic examination revealed a small yellowish body, and, suspecting it to be alive, he injected eight to ten drops of liquid vaseline. The pain ceased at once and the animal dropped out.

The author quotes a case where a flea in the ear caused epileptic fits. He strongly advises the use of oil, glycerine, or liquid vaseline, followed by a douche of warm water, in preference to the use of forceps.

Anthony McCall.

**Braislin, Wm. C.**—*Mastoiditis in Infancy and Childhood.* "Brooklyn Medical Journal," August, 1904.

This paper deals with the peculiarities which mastoid disease presents in children. *Anatomical peculiarities* are taken first and, *inter alia*, the author points out that the inferior width in calibre of the external auditory meatus in early life is often the cause of imperfect drainage of middle-ear discharges in young subjects. In discussing *symptomatology*, prominence is given to temperature and to the fact that abdominal pain may be complained of when the ear is really the part at fault. In *diagnosis* routine bacteriological examination is advocated, the statistics in the New York Eye and Ear Infirmary demonstrating that the virulence of the infection varies with the organism. In the author's experience facial paralysis is an uncommon complication of mastoiditis in children.

Macleod Yearsley.

## REVIEW.

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*The British Journal of Children's Diseases.* Edited by GEO. CARPENTER, M.D. Published monthly by Adlard and Son, London.

A highly sagacious and able young surgeon resigned some years ago his appointment in a large general hospital in order to take up one in a hospital for children. He explained his action by the statement that he who was called in to attend on the children might, if he acquitted himself well, count with considerable certainty on being consulted by the parents. It is pretty generally admitted that the key to success in family practice is a knowledge of children and their diseases. The Society for the Study of Disease in Children, though among the very youngest of medical societies, has a large and distinguished list of members, and issues each year a volume of transactions of the highest value. In these circumstances it is strange that *The British Journal of Children's Diseases* is a creation of only recent date, but its career is assured, as none can afford to be behind the times in the diagnosis and treatment of diseases which in children present such peculiar features.

The specialist in diseases of the throat, nose, and ear will frequently find himself in difficulties if he loses his interest in children's diseases, and he will find the perusal of our contemporary a trustworthy and pleasant means of keeping it up. While every article has something deserving of our attention, we may instance as among those bearing most directly on our subjects a case of "staphylococcal mouth infection" by Dr. Dan Mackenzie; "The Treatment of Tracheotomy Wounds in Diphtheria," by Dr. A. Ernest Jones; "Congenital Stricture, or Occlusion of the Oesophagus," by the Editor, Dr. George Carpenter. The abstracts are well selected, and are obviously framed so as to act not merely as a catalogue of papers, but to convey such information as the reader may apply to practical use. A very valuable portion of the journal is the report of each meeting of the Society for the Study of Disease in Children. In this will be found the description of a case of "status lymphaticus, with death from laryngeal stridor," by Dr. Hunter Tod.

The first volume commenced in January of the present year, and our readers would do well to secure the back numbers of what will prove to be a very valuable possession.

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## THERAPEUTIC PREPARATIONS.

We have received from Messrs. ALLEN and HANBURY specimens of the Menthol and Eucalyptus, and of the Menthol, Cocaine, and Red Gum Pastilles manufactured by them. These are but two varieties of the long list of the "Allenburys" Throat Pastilles which were introduced many years ago to meet the requirements of throat specialists. They have as a basis Pâte de Jujube, and are manufactured by a special process, which gives to them a delicacy of flavour, permanent softness, a transparency, and brilliant surface with an absence of all clamminess in the mouth. The list of over fifty varieties enables the practitioner to prescribe the most efficient drugs known in modern therapeutics for throat affections, in a most elegant form and in exact dosage.

THE  
JOURNAL OF LARYNGOLOGY,  
RHINOLOGY, AND OTOTOLOGY.

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**SOME ANATOMICAL NOTES UPON THE MEMBRANOUS  
LABYRINTH.<sup>1</sup>**

BY ALBERT A. GRAY, M.D. GLASG.,

Aural Surgeon Bellahouston Dispensary, Victoria Infirmary, Glasgow.

MEASUREMENTS of the various portions of the normal human inner ear have been made by several observers. Of these observers some have referred to the probability that variations may occur, but no definite attempt has been made to ascertain the extent and nature of these variations. There is no need, therefore, to apologise for the following remarks on the subject and the accompanying table.

The four specimens which were examined were obtained from individuals with presumably normal hearing and of ages varying from thirty to sixty-five and of both sexes.

The method of preparation was that devised by myself and published in the *Journal of Anatomy and Physiology*, vol. xxxvii p. 379.

It is not necessary to go into details in comparing the measurements in the different specimens, since the reader can easily note these from the table. Some remarks on the matter, however, will not be out of place.

Variations in size occur in all parts of the labyrinth; that is to

<sup>1</sup> Abstract of a demonstration given at the annual meeting of the British Medical Association, Oxford, 1904.



say, no structure appears to have a constant size. Least proportionate variation occurs in the general length of the organ from the outermost point on the vertex of the posterior canal to the innermost point on the first whorl of the cochlea. This variation is 1 mm. The diameter of the cochlea is also of very constant size, the variation being within 0.25 mm.

Greatest proportionate variation occurs in the internal diameter of the external semicircular canal—that is, in the space between the limbs, measured from concavity to concavity. There the maximum is 3 mm. and the minimum 2 mm.

It is rather surprising to find that the transverse diameter measured from limb to limb is on the average greater in the superior than in the posterior canal. The latter is undoubtedly the longer in most healthy labyrinths, if not in all. A careful examination of my specimens, however, showed that the discrepancy is only apparent. The superior canal is in the form of a wide shallow arch, while the arch of the posterior canal is narrow and long. Owing to the extreme delicacy of the preparations it was found impossible to measure the length of the canals, as may be done on metal corrosion casts of the cavity.

Variations in size may occur in one part of the labyrinth alone. Thus, a large cochlea may be associated with small canals. Even more remarkable is the fact that a large lower whorl may be associated with a small second whorl of the cochlea.

Preparations of the membranous labyrinth by my method reveal certain anatomical facts not hitherto recognised. The most important of these is the presence of a second ampulla at the posterior end of the horizontal canal. This ampulla is present in three out of five specimens examined by me. It is not quite so rounded as the normal ampulla at the anterior end, and in none of the specimens is there any sign of a neuro-epithelium or of nerve-fibres supplying the structure. What the precise significance of this ampulla may be it is difficult to determine. It would appear to have some bearing upon the flow or the pressure of the endolymph in the canal. On the other hand, it may be a vestigial remainder of that condition which exists normally in the leopard, the horse, and the cetacea, in which the posterior limb of the horizontal canal opens into the ampulla of the posterior canal.<sup>1</sup>

In view of the fact that three out of five of my specimens showed the existence of this structure the question arises whether it must not be looked upon as the normal anatomical condition and that the anomaly would be rather in its absence.

<sup>1</sup> Denker, "Gehörorgan d. Säugethiere," Veit and Co., Leipzig, 1899.

	1	2	3	4	Mean.
	mms.	mms.	mms.	mms.	mms.
Extreme length of labyrinth, from vertex of posterior canal to innermost part of cochlea	17	18	17	17	17.25
Diameter of lowest whorl of cochlea at beginning of first turn	9	8	7.5	8.5	8.25
Diameter of second whorl of cochlea	4	5	4.5	5	4.625
Diameter of the tube of cochlea just in front of round window	2	2	2	2.25	2.06
Diameter of vestibule just above oval window	3.25	3.5	3.75	3.5	3.5
Transverse diameter of superior semicircular canal from limb to limb. Internal	4	4.25	4	5	4.3
Transverse diameter of superior semicircular canal from limb to limb. External	8.5	8.25	7.5	7.75	8
Height of superior semicircular canal from vestibule	4.5	4.5	3.75	4.5	4.3
Diameter of superior semicircular canal itself at vertex	1.25	1.75	1	1	1.25
Transverse diameter of posterior semicircular canal from limb to limb. Internal	4.75	3.75	4.5	3.5	4.02
Transverse diameter of posterior semicircular canal from limb to limb. External	8.25	7	8.5	7	7.68
Height of posterior semicircular from vestibule	4	3.5	4	4	3.87
Diameter of posterior semicircular canal itself at vertex	1.8	2	1.5	1.5	1.7
Transverse diameter of external semicircular canal from limb to limb. Internal	2.5	2	2.75	3	2.56
Transverse diameter of external semicircular canal from limb to limb. External	7	7	6.5	7	6.87
Height of external semicircular canal from vestibule	2.25	2.25	3	3.5	2.75
Diameter of external semicircular canal itself at vertex	1.55	1.5	1.5	1.25	1.44

## SYMPTOMATIC HERPES ZOSTER OVER THE ANTERIOR PALATINE NERVE AS A COMPLICATION OF OTITIS MEDIA AND ABSCESS OF THE TEMPORO-SPHENOIDAL LOBE; OPERATION; RECOVERY.

By H. STANLEY TURNER, M.R.C.S.,

Assistant Anæsthetist to the Central London Ear and Throat Hospital.

THIS case appears to be of interest, because, though the records of complications of otitis media and cerebral abscess have been carefully searched, no record of a similar case has been met with. The zoster is here described as a complication of otitis media and cerebral abscess; from the period of its appearance, however, when the inflammation was in process of extending beyond the limits of the middle ear, it might, perhaps, with more precision,

be regarded as an intermediate complication of the middle-ear trouble—a bye-product, in fact.

The terms “herpes” and “herpetiform eruption” appear sometimes to be loosely employed—frequently to designate the eruptions seen about the lips and face in febrile conditions. True herpes zoster follows the course of a known nerve or nerves, is never unilateral except in rare cases of bilateral spinal cord disease, does not recur, and is *always associated with lesion of a sensory root ganglion*.

Herpes zoster may be described as of two kinds, the so-called primary or idiopathic, and the secondary or symptomatic. It is with the latter variety that we are concerned in the present instance.

As long ago as 1861 von Barensprüng stated herpes zoster to be of definitely nervous origin, adding to his observations the result of a *post-mortem* examination, in which its association with lesions of posterior root ganglia was definitely proved; and since then cases of symptomatic herpes zoster have been frequently reported in various parts of the body. Thus Charcot and Cotard<sup>1</sup> report the case of a woman with cancer of the breast, who developed zoster over the third and fourth cervical areas, in which secondary growths were found to have invaded many of the vertebræ, especially those corresponding to the cervical areas above mentioned. The only change found in the nervous system was “an active injection of the capillaries of the ganglia and nerves, a ‘veritable neuritis,’ without concomitant alteration of the ganglion cells or nerve-tubes.”

E. Wagner<sup>2</sup> reports a somewhat similar case, in which the patient suffered from tuberculous caries of the lower six dorsal and the first and second lumbar vertebræ, and developed zoster over the ninth and tenth ribs seven days before death. *Post-mortem* microscopic examination showed the ninth, tenth, and eleventh dorsal sensory ganglia to have been involved.

Oscar Wyss, in 1871, reported a case of zoster of the whole first division of the fifth nerve, fatal seven days after the appearance of the eruption; which is of special interest, in that it was the facial nerve involved in the case of cerebral abscess under notice.

In his case the ophthalmic vein was thrombosed, the eye muscles contained small abscesses, whilst the eyeball was infiltrated

<sup>1</sup> “Sur un cas de Zone du Cou,” *Soc. de Biol.*, 1865, 4<sup>me</sup> série, vol. 2 Mémoires, p. 41.

<sup>2</sup> “Pathologisch-anatomische und klinische Beiträge,” *Archiv für Heilkunde*, Bd. xxi, p. 321, 1870.

with pus. From the point where the first or ophthalmic division leaves the Gasserian ganglion to enter the eyeball, it was surrounded with extravasated blood. The second and third divisions were unaffected, but attached to the inner side of the ganglion lay a red mass 1 cm. broad, apparently consisting of extravasated blood.

Microscopically there were small extravasations into the inner aspect of the ganglion, and the first division of the fifth.

The following is an abstract from the notes on the present case :

E. B—, aged twenty-four, an actress by profession, complained of severe neuralgic pain over the right side of the head.

Said to have always been healthy, but to have had a discharge from the right ear since childhood. She is married and has had one premature child.

*Nov. 1. Condition on examination.*—Temperature 98·4° F. Pulse 74. Resp. 20. No carious teeth. There was severe pain in the right ear, aggravated by movement of the jaw, practically no discharge, and but slight fœtor. There was no pain or swelling over the mastoid process. Hearing had never been examined, but, though a musician, she had never complained of deficiency.

There was great swelling of the meatus, which, with the pain, prevented an examination by speculum. Patient very restless.

The ear was ordered to be syringed with hot boric lotion, and hot boracic fomentations were applied over the side of the face without relief.

*Nov. 4.*—Copious, very fœtid, purulent discharge. Pupils equal. No vomiting. Pulse 100; temperature 101° F. No pain over mastoid and no swelling. Respirations regular, and of uniform depth. Somewhat drowsy, some yawning, and a slight lisp. Otherwise unchanged. Hydrogen peroxide drops ordered. No twitching or rigidity of limbs or face.

*Nov. 6.*—During a perfectly rational though weary conversation patient had hallucinations as to a black cat being in the room afterwards resuming the thread of the conversation quite intelligently. This mental condition is not uncommon in early intracranial suppuration. An attempt to examine the fundus oculi was frustrated by patient's drowsy irritability. Aural discharge very fœtid. Severe pain over vertex and right side of head. Slight Cheyne-Stokes' respiration.

*Later.*—Mental condition worse. No delirium. Vomiting, but not of classical cerebral type. Suspecting cerebral abscess, I got Mr. Jacobson to see the case with me. He agreed as to the great



probability of intra-cranial suppuration, but considered the drowsiness, with great irritability when roused, and general restlessness, pointed to meningeal trouble, and thought it premature to explore.

*Nov. 9.*—A perfectly typical eruption of herpes zoster was observed on this day, having the following distribution: two perfectly symmetrical chains, one upon the outer and one upon the inner aspect of the alveolar process of the right superior maxilla, extending from the level of the lateral incisor in front to the wisdom tooth behind. There was also a small chain about a quarter of an inch long on the right of the middle line of the soft palate. The vesicles, a few of which were large enough to be seen to contain, and to yield, clear fluid, were for the most part small, covered with whitish-grey mucous membrane, slightly raised above the level of the surrounding mucous membrane, and surrounded by areolæ of inflammation. The rest of the mouth was comparatively clean, beyond a slightly furred tongue. The submaxillary glands were enlarged on the right side.

*Nov. 10.*—Patient seemed slightly better, but was greatly troubled by the continuous headache. No hallucinations or Cheyne-Stokes' respiration. Pupils equal. No vomiting. Most of the vesicles mentioned above were now small ulcers, on account of the maceration and erosion of the covering mucous membrane, the remains of which could be seen in a ragged condition around the margins. Some of the bases were bright red, tending to bleed; others were of a greyish colour. Patient complained of pain along the gums.

*Nov. 12.*—Fætor of the discharge much improved. Temperature 102° F.; pulse 68. Drowsy, but restless. No vomiting. Pupils equal. Cephalalgia continuous. Yawning frequently, but quite intelligent. A condition of "delayed cerebration." The ulcers in the mouth still sore, but healing.

*Nov. 14.*—Temperature 99° F.; pulse 50. No vomiting; both pupils dilated. Comatose at intervals, but could be roused. The mouth was very foetid, lips sordid. Not easy to make out condition of ulcers. Patient was removed to a nursing home.

*Nov. 15.*—Operation was performed, practically without an anæsthetic. Patient was trephined one inch and a quarter behind and above the centre of the external auditory meatus, and a large abscess in the temporo-sphenoidal lobe was evacuated. Drainage-tube inserted. Rigidity of left side (arm and leg) before operation.

*Nov. 16.*—Patient recovered consciousness for a short time and spoke.

*Nov. 25.*—Patient was moved home and bore journey well.

On Jan. 10th I performed a radical post-aural operation (Stäcke's), the previous operation wound being practically healed. She made an uninterrupted recovery.

*March 1.*—Patient could hear the watch on the affected side at 4 inches.

A consideration of the nerve supply of the palate and its communications helps materially in the explanation of the pathology of this case.

Researches into the pathology of herpes zoster show that a posterior or sensory root ganglion must be involved.<sup>1</sup>

The only cranial nerve resembling a spinal nerve by having a motor and a sensory root is the fifth or facial, and the Gasserian is its posterior root ganglion.

This ganglion is lodged in a depression near the apex of the petrous part of the temporal bone. From its anterior border it gives off three large branches—(1) the ophthalmic; (2) the superior; and (3) the inferior maxillary, which are solely nerves of sensation. Of these, the superior maxillary, when in the speno-maxillary fossa, gives off—(a) temporo-malar, (b) speno-palatine, and (c) posterior dental branches.

The speno-palatine, two in number, descend to the speno-palatine or Meckel's ganglion, *of which they are the sensory roots.* The fibres derived from these two nerves for the most part pass in front of, and are not incorporated with, the ganglionic mass; *i.e.* they are practically a direct continuation of sensory fibres from the Gasserian ganglion through the superior maxillary nerve. The branches of Meckel's ganglion are: (1) ascending (to orbit); (2) descending (to palate); (3) internal (to nose); and (4) posterior (to pharynx).

*The descending palatine* branches supply the mucous membrane of gums, palate (hard and soft), tonsil, and lining membrane of the nose, and are almost a direct continuation of the speno-palatine branches of the superior maxillary. They are three in number—anterior, middle, and posterior.

*The anterior palatine* descends through the posterior palatine canal, emerges on the hard palate at the posterior palatine foramen, and passes forwards in a groove on the hard palate as far as the incisor teeth, supplying the gums, mucous membrane, and glands of the hard palate.

Thus, the fibres in the anterior palatine can be traced direct to the Gasserian ganglion; and considering the pathology of exten-

<sup>1</sup> *Vide* Head, "The Pathology of Herpes Zoster and its Bearing on Sensory Localisation," *Brain*, pt. iii, cap. iv, p. 381, 1900, who quotes before-mentioned cases.

sion of middle-ear suppuration to the temporo-sphenoidal lobe, it not only seems easy for the Gasserian ganglion to be involved in the transitional inflammatory or suppurative process, but it is remarkable that evidences of this involvement are not more common. Herpes of the face has, of course, been observed; but as far as I can trace, this is the only case involving the palate placed on record. Fortunately, the patient's recovery deprived us of precise *post-mortem* evidence as to the condition in this instance; but I think the explanation is that the Gasserian ganglion was involved in the localised basal inflammation, and as Head<sup>1</sup> (to whose valuable article above mentioned I am indebted for much information) says: "It is, of course, possible that this condition was due to the same specific toxic influence that produces primary zoster, and that the dorsal ganglion, surrounded as it was by new growth (in this case by 'inflammation'), laid it particularly open to attack by the specific disease process. But it seems far more probable that in this case the zoster was directly produced by the secondary inflammation produced in the ganglion by the new growth" (or inflammation).

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CELEBRATION OF SENOR MANUEL GARCIA'S 100TH BIRTHDAY.—In our June issue we announced the approach of this unique event and the manner in which it would be celebrated. While celebrating Senor Garcia's 100th birthday we shall at the same time also be celebrating the jubilee of the laryngoscope, as Senor Garcia read his paper entitled "Physiological Observations on the Human Voice" before the Royal Society in 1854: it was published in the following year. Mr. John Sargent, R.A., has undertaken to paint the presentation portrait. It has been decided that a replica of the portrait in the form of an etching shall be executed, so that copies may be procured by those desirous of possessing a souvenir of the centenary. Subscriptions to the "Presentation Fund" may be forwarded to Mr. W. R. H. Stewart, 42, Devonshire Street, Portland Place, London, W.

<sup>1</sup> *Loc. cit.*

## THE SEVENTH INTERNATIONAL OTOLOGICAL CONGRESS.

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*Held at Bordeaux, August 1-4, 1904.*

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*President : Dr. E. J. MOURE (Bordeaux).*

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### REPORT OF PROCEEDINGS.

*Continued from page 543.*

*Wednesday Afternoon, August 3.*

BOTEY, R. (Barcelona) : *The Prevention of Stenosis of the Meatus after Radical Operations on the Ear.*

The frequency with which stenosis of the external auditory meatus occurs after the radical mastoid operation is well known to the otologists of every country. Several procedures have been thought of for preventing this complication, and at the same time aiding the process of epidermisation of the cavity. The methods of Zaufal, of Stacke, of Panse, of Koerner, and of Siebenmann have been mostly practised ; but none of these are certain in their results, and, moreover, the renewal of the plugs in the meatus is very painful.

The plan proposed by the author consists in a supero-anterior incision through the whole length of the membranous meatus, as far as the auricle, where the anterior furrow of the ear lies between the superior border of the tragus and the root of the helix in the concha. In this space no cartilage exists, and the incision is perfectly hidden between these two prominences. A very large meatus is thus obtained through which the thumb can be passed in adults or the forefinger in children.

This procedure is applicable to every case ; but, in order to insure the permanence of the enlarged meatus, a slightly flattened metallic cone perforated with small holes and of a calibre of 15 to 22 mm., and from 16 to 24 mm. long, is placed in the meatus. The cone should be left in place for five or six weeks, the time necessary for the complete epidermisation of the meatus. A thick piece of gauze surrounded by protective smeared with vaseline, is then introduced, and can be changed without disturbing the cone and without giving pain to the patient.

The author stated that the results obtained by this method were uniform—that is to say that, at the conclusion of the treatment, every patient had a very large meatus, nearly invisible at first



sight, through which, at a later stage, it was possible to watch for the slightest recurrence.

BOBONE, T. (San Remo) : *The Preparation of Patients for Operations.*

Besides attending to asepsis with the most scrupulous care, the author prepares his patients somewhat in the manner of the surgeons of the pre-antiseptic era.

Every patient before operation is submitted to a minute examination, with a view of ascertaining if he is, by chance, the subject of diabetes, of syphilis, or of renal disease; if he is scrofulous or tuberculous, and whether his teeth are in good condition or carious; if he has any purulent foci in other parts of the body, and especially if he is suffering from gleet. The functional activity of his liver is inquired into, and any signs of malaria, leucæmia, arterial sclerosis, or excessive arterial tension are sought.

If this examination reveals any disorder of nutrition, or the presence of any diathesis, infection, or intoxication, an attempt is made to correct or overcome it before operating. Besides this, on the days which precede and immediately follow the operation, the field of operation is protected from any bad influence caused by intestinal auto-intoxication. The patient is purged on two occasions at least by the administration of magnesia, sulphur, benzo-naphthol, charcoal, or calomel according to the case, in order to disinfect the intestine; and he is put upon a restricted diet, of a non-toxic nature, or, if necessary, upon milk only.

LOMBARD, E. (Paris) : *A Contribution to the Study of Mastoiditis. "The Antro-apical Cellular Tract."*

The author has several times observed, whilst operating, a peculiar arrangement of the mastoid cells situated between the antrum and the apex of the mastoid process, and between the sinus and the facial canal. He noticed this peculiarity chiefly when the bone was diseased and in cases of pneumatic and mixed mastoids. The group of cells in question often corresponds with one of the following types:

1. The antrum having been opened and the cortex taken away, a large focus of diffuse osteitis is met with, or else several large suppurating cells. A channel of the same depth as the antrum is hollowed out by the operation.

2. Two planes of cells are present, one deeper than the other, separated by a bony lamina of variable resistance. After removal of the superficial plane, a prominence or rampart of bone remains

between the antrum and the tip: behind this the deeper group is found.

The author concluded that in the mastoid operation the examination of the cells between the sinus and the facial nerve should never be neglected; that the absence of any small deep focus should be always certainly ascertained; and that the vertical furrow should be hollowed out so that its depth is equal to the distance of the inner wall of the antrum from the surface of the mastoid process.

MOCRET, J. (Montpellier): *Thrombo-phlebitis of the Right Lateral Sinus, following an Attack of Acute Otitis Media of six days' duration, in a Child aged nine years. Operation on the Sinus, Ligature of the Jugular Vein, Drainage of the Sinus and of the upper end of the Jugular Vein. Recovery.*

On the sixth day of an attack of acute otitis media, which was being treated with irrigations of boric acid, the patient, a child of nine years, had a violent rigor, followed by a second a few hours later. The author, when called to the case, found a profuse muco-purulent and bloody discharge from the ear, deep continuous pain in the temporo-occipital region, but no mastoid tenderness, and no pain along the jugular vein. The pulse was intermittent; there had been some vomiting. He diagnosed thrombo-phlebitis on the right side.

A mastoid operation was performed, but hardly a drop of pus was found in the depth of the mastoid process. The lining membrane of the antrum and tympanic cavity was only slightly thickened and congested. The lateral sinus was then exposed for a distance of 2.5 c.m., and an abscess was found around it. The sinus, a little flattened, transmitted the pulsations of the brain. The operation was stopped at this point, as the child's pulse was not good. In the evening the temperature was 98° F. There was some tenderness of the jugular region owing to some inflamed submaxillary lymphatic glands. The sinus was opened, and found to be thrombosed. The internal jugular vein, which was empty of blood, was then exposed, and a ligature applied to the lower part. The vein was punctured above the ligature and washed out with boiled water: this brought away some suppurating clots from the lower end of the sinus. A second ligature was applied to the vein above the point which was punctured, and both ends of the sinus were curetted. There was no hæmorrhage. A plug of sterilised gauze was introduced into the upper end of the sinus.

The following day, the temperature remaining at about 103° F.,

it was found that some pus was retained in the upper end of the sinus. Drainage-tubes were introduced into both ends of the sinus and into the upper end of the jugular vein, which was irrigated with boiled water every day. Eight days after the operation there was slight jaundice and some œdema of both eyelids on the right side. Gradually, however, these symptoms subsided, the wound healed well, and the child left the hospital rather more than a month after the operation.

CASTEX, A. (Paris): *Hæmorrhage from the Jugular Vein and Late Paralysis of the Facial Nerve after Operation.*

The author described an operation complicated by two rare accidents. A girl, aged sixteen, underwent the radical mastoid operation on account of old-standing pains in the mastoid process, subsequent to suppuration of the middle ear. The mastoid was eburnated, but no antrum could be found. During a final curetting of the tympanic cavity, a profuse hæmorrhage suddenly occurred from the meatus, the post-auricular wound, and even from the nose and the mouth. It was controlled by firm pressure with a plug of iodoform gauze.

Nine days later temporary facial paralysis appeared, which passed away in fifteen days.

MASSIER, H. (Nice): *A Case of Otitic Pyæmia, without Thrombophlebitis of the Lateral Sinus: Multiple Metastatic Abscesses. Recovery.*

On March 4 a patient, after a common sore throat, was attacked by acute suppuration of the middle ear on both sides, without marked fever. Both membranes bulged, and pus was let out by paracentesis. On March 7 the left mastoid was excessively tender; the patient had severe headache and high fever. On March 14 a mastoid operation was performed, but no pus was found in the cells. The lateral sinus was exposed, and was healthy. All the symptoms then abated. On March 16 severe pains in the right shoulder came on, with high fever and rapid pulse. The following day there were herpetic angina and slight delirium. On March 18 pain in the left knee-joint was complained of. The temperature still continued to rise for four days and reached 104° F., but fell again after a free evacuation of the bowels. Albuminuria was then noted. On March 24 there was slight pseudo-membranous sore throat and painful synovitis of the sheath of the right peroneal muscles. On March 28 a painful swelling appeared over the body of the sternum. There was also marked glycosuria. Fluctuation was

detected in all the painful regions. The left knee-joint was opened and a quantity of pus let out, and various abscesses were evacuated. In every collection of pus streptococci in pure culture were found.

The mastoid process was not the seat of any localization, but its healing was exceedingly slow. From April 1 onwards the patient, in spite of the numerous purulent foci, gradually improved and finally recovered.

MAHIC, G. (Paris) : *Mastoiditis in Cases of Atresia of the External Auditory Meatus.*

Mastoid complications in the course of acute otitis media, when atresia of the external auditory meatus exists, whether the atresia is antecedent or has occurred in the course of the disease, whether congenital, accessory, or secondary to this affection, are of frequent occurrence. Such complications are, moreover, clearly the result of the obstacle to observation, and to the drainage of the purulent focus.

The author drew attention to the diversity and to the serious nature of the complications in cases of this kind, which are generally evolved without external signs and before a diagnosis can be made soon enough to be useful.

Of the four cases recorded by the author, the narrowing was caused in one by a mastoid fistula opening into the meatus, in two by external otitis, and in one, that of an old man, by collapse of the postero-superior wall of the cartilaginous meatus. In each of these cases there was Bezold's mastoiditis with cervical purulent foci of greater or less extent, making a mastoid operation necessary, and in the case of the old man giving rise to a suppuration of the labyrinth, terminating fatally.

In cases of acute otitis of this kind which continue for some time, it is most important to practise antrotomy in good time without waiting for the appearance of serious symptoms; and secondly, to perform the radical operation at once even in the absence of bone lesions of the tympanum or of its contents if the condition of the meatus makes it doubtful whether there will be sufficient drainage after the operation.

BAR, L. (Nice) : *Extradural Abscess surrounding the Lateral Sinus. Operation. Recovery.*

The author reported the case of a patient who, without appreciable aural symptoms, had developed an extradural abscess. Persistent headache and vague signs of infection necessitated a mastoid operation, during which the nature of the case was revealed.



The author took advantage of this case to make a review of symptoms, and to point out how often they are indistinct, and how often, consequently, the diagnosis is only made during the operation or at the autopsy.

He agreed with the opinion of Broca, not only that an operation should be performed without delay when the signs justify it, but also that even when the mastoid is normal the antrum and tympanum may be laid open freely in order to gain an entry by this route into the cranium, if some special lesions require it.

CLAOUÉ (Bordeaux): *Two Cases of very large Cholesteatoma of the Temporal Bone.*

While performing a radical operation for a fœtid otorrhœa of three years' duration, which came on suddenly without pain and without appreciable cause, the author found a voluminous cholesteatoma invading the mastoid, the antrum, and the attic. After the complete clearing out of the cavity and removal of the granulations, the breach presented the following dimensions: Depth 2·5 c.m., width 3 c.m., length 5·5 c.m. Behind the antrum the sinus was largely exposed: above, the dura mater was uncovered for a space of about 1·5 c.m. The ossicles had disappeared; the posterior wall of the meatus affected with necrosis was almost entirely excised; a fistula led into the external semicircular canal; the oval window gaped, as in an anatomical specimen. The facial nerve was exposed in its canal, and a fistulous track led from the inferior wall of the meatus towards the jugular bulb.

In spite of the extent of these lesions they were almost entirely latent. There were no cerebral or labyrinthine symptoms; no vertigo, no staggering; only slight tinnitus.

The retro-auricular opening was kept open, and allowed to close gradually.

The second case was a similar one, but the cholesteatoma was not quite so large.

CAUZARD, P. (Paris): *Caries of both Petrous Bones, the sequel of Chronic Suppurative Otitis. Removal of both Petrous Bones—that is, of the whole Petrous Portion of the Base of the Skull—after a Double Radical Operation, with Resection of the Squamous Portion on the Left Side. Intra-cranial Transfixion from one Mastoid to the other. Recovery.*

The case recorded by the author was interesting and rare on account of the absence of clinical signs, the extent of the lesions, and the amount and situation of the bone which was removed. One of the most important parts of the floor of the cranial cavity was

thus abolished, and it was possible to pass a probe from one side to the other across the cranial cavity.

The patient was a young man, aged eighteen, with abundant purulent discharge from both ears, into the pharynx, and through the nose, and with inability to open the mouth. There were sequestra in both tympanic cavities; but although the labyrinths were apparently destroyed on both sides, there had not been any symptoms of labyrinthine suppuration or of cerebral disturbance. The patient, in fact, stopped work in order to be operated on. The first operation was a radical mastoid on the left side, with exposure of the lateral sinus, resection of the upper border of the meatus, of the horizontal root of the zygomatic process, and of a great part of the squamous portion of the temporal bone. The dura mater was exposed on the external and inferior surfaces of the temporal lobe, and was covered with granulations. The posterior and superior walls of the glenoid cavity were removed and several sequestra representing the labyrinth, the base and the apex of the petrous bone. The facial nerve was injured.

At the conclusion of the operation there existed a deep pit corresponding to the base of the petrous bone, dividing into two distinct tunnels, one forwards, opening towards the left choana; the other, directed towards the opposite petrous bone, passed behind the basilar process and in front of the medulla. An irrigation of serum produced a dangerous cardiac and respiratory syncope of bulbar origin. The wound was dressed with iodoform gauze. There was complete facial paralysis. The sequel was satisfactory, but with slight fever and irregularity of pulse.

On the second and fourth day after the operation, during irrigation of the right ear, the patient expectorated two or three small sequestra belonging to the right petrous bone.

Four weeks later the right side was operated upon, with extensive removal of sequestra as on the left side. The facial nerve was exposed, but was not injured.

The cavity corresponded exactly with that of the opposite side, from which it was separated by a partition of periosteum and of dura mater presenting two orifices. One orifice led to the right choana; the other allowed the passage of a probe across the cranial cavity, passing behind the intra-cranial surface of the basilar process and in front of the anterior surface of the medulla, and emerging on the opposite side. The sequel was excellent. The patient could take food, and the stiffness of the jaw diminished. There was no facial paralysis on the right side, that on the left gradually diminished. The patient was on the road to recovery.

BAR, L. (Nice) : *Associated Otomycosis of the External Auditory Meatus.*

The author showed that certain cases of diffuse external otitis of phlyctenular or vesico-pustular form were, in reality, dermatomycoses, either simple or combined with various pathogenic bacteria, and that this was the cause of the polymorphism and of the variations in severity. Although dependent as to their origin upon various schyzomycetes (*aspergillus glaucus* and *niger*, *oïdium albicans*, *mucor mucedo*, *tricothecium roseum*, *trychophyton* of Malstein, etc.) their association with the bacteria (*streptococcus*, *Staphylococcus pyogenes*, *micrococcus*) produced profound modifications of their aspect, their progress, and their result.

From this cause arose sometimes hæmorrhagic phlyctenulæ, sometimes the vesiculo-pustulous form which closely resembles furunculosis, and sometimes also the inflammatory stenosis of the meatus. These cases, very resistant to treatment even when simple, became much more troublesome and liable to recur when associated with the presence of microbes.

For treatment the author recommended the persevering use of alkaline and antiseptic lotions.

MIGNON M. (Nice) : *A serious form of Eczema of the Ear.*

In a patient aged eighty, who had suffered for a long time from chronic eczema of the ear, an acute attack was produced by irritating applications and by mismanagement. The external meatus being completely closed, there was retention of the secretions next to the tympanic membrane; and then otitis media suppurativa without the possibility of an external discharge. From this resulted very soon an acute mastoiditis with facial paralysis.

After the performance of a mastoid operation the paralysis diminished and the pain became less; but the inflamed condition of the superficial tissues hindered cicatrisation, and sloughing of the whole area of the operation and gangrene of the auricle took place. On the eighth day after the operation the patient died suddenly from an embolus. There was no diabetes or albuminuria. The bad result of the operation was explained by the alteration of the superficial tissues, which, with the age of the patient, was favourable to all sorts of infections.

DIDSBURY G. (Paris) : *A Case of Acute Suppurative Otitis Media with Evacuation by the Eustachian Tube.*

In a woman aged fifty, of good general health, an attack of

acute otitis of influenzal origin on the left side was diagnosed, which discharged itself by the Eustachian tube at the end of about six hours after the first onset of the acute symptoms. The return of the auditory function was almost immediate; however, the patient was still blowing down traces of pus from the nose, when, five weeks after the onset of the attack, signs of maxillary sinusitis appeared on the left side without appreciable cause. This sinusitis got well spontaneously in ten days without leaving any traces. A few days later the inferior turbinal body became inflamed; it became turgescient and tender to touch, as if it were the seat of an abscess. After some hours there was a discharge of a little pus, and the swelling and tenderness disappeared. Again, after some days a little furuncle appeared at the edge of the left nostril, which disappeared spontaneously. The author inquired, first, if the later manifestations were not in causal relation to the purulent discharge from the Eustachian tube; and, secondly, if the possibility of this origin be granted, whether it would not have been better in such a case to perform paracentesis, so as to drain the tympanic cavity through the meatus, and thus avoid the complications which occurred.

*Thursday, August 4.*

Dr. H. KNAPP, Professor E. SCHMIEGELOW, and Dr. RICARDO BOTEY reported upon the *Technique of the Operation and subsequent Treatment of Otogenous Abscess of the Brain*.

Dr. KNAPP, in his Report, dealt with the cleansing and disinfection of the ear and of its circumference from the vertex to the occiput, and the opening of the abscess, which, he said, could be carried out by two methods:

1. Through the cranium, with a trephine, or with gouges.
2. Through the ear, by searching for the track followed by the infection, removing all the diseased tissue by total *évidement* of the cavities of the middle ear, and entering the cranium by the roof of the tympanum and that of the antrum. This latter method was adopted by otologists.

The exposure of the cerebellum is made by an incision along the posterior border of the mastoid process to the upper bend of the sigmoid sinus, and carried along the line of the lateral sinus. If there are localising signs of sensation or motor power, or sensorial symptoms as hemianopsia, aphasia, etc., the cranium is opened at the spot indicated by these symptoms, above the entrance of the external meatus. The ear is treated separately.



The evacuation of the pus should be complete. This will be the case provided the opening is large enough and the pus is allowed to flow out of its own accord. After the evacuation the interior of the cavity can be explored with the thoroughly sterilised finger. A very useful instrument for examining the walls of the abscess is the encephaloscope, lately invented by Dr. Frederick Whiting, of New York. The management of this speculum for the brain is similar to that for the external meatus and tympanum. Cautious irrigation is useful when there is an abundant flow of pus. If the aperture is gaping, there is no need to introduce gauze or drainage-tubes.

If evacuation is complete, and if there is no complication, recovery takes place without incident.

Amongst complications, he made special mention of cerebral hernia. It is produced by the mechanism of a secondary abscess developed in the neighbourhood of the primary abscess. Upon opening it, the hernia will disappear little by little without being excised. However, resection of the hernia is necessary when it is large, if the perforation in the cranium is small.

The most anxious complication is the development of secondary abscesses in the cavity of the cranium. An indication of their presence is given by an aggravation of all the symptoms, and they occasion death by encephalitis or meningitis. As soon as they are recognised the orifice should be enlarged or another aperture made—for example, in the squamous portion, if the first opening has been through the tympanum; the cavity should be explored with the finger, or better still with the encephaloscope, and the new abscess incised.

Secondary abscesses are far from being rare. If the opening into the cranium is large, secondary abscesses protrude with the surrounding tissue, and open spontaneously if the surgeon's knife has not anticipated them. It is well known that patients recover after evacuation of a cerebral abscess, but subsequently succumb from relapses, occasioned by insufficient drainage.

Professor SCHMIEGELOW arrived at the following conclusions :

1. In consequence of the impossibility, usually, of determining beforehand the situation (cerebral or cerebellar) of otogenous encephalic abscesses, the operation should be performed, in all cases, in such a way that the abscess can be sought as well in the cerebrum as in the cerebellum.

2. The anæsthetic (ether or chloroform) should be employed with the greatest caution, as numerous cases are known in which

its use in cases of abscess of the brain has caused sudden death by paralysis of respiration.

3. Every operation for otogenous abscess of the brain should be commenced by the radical mastoid operation.

4. Since the abscesses, both cerebral and cerebellar, are situated in the immediate vicinity of the affected bone, the best means of finding the abscess is to enlarge the place of the resection of the bone in every direction.

5. The incision in the dura mater and the opening of the abscess is performed by the aid of a knife. The best drainage is obtained by a tubular drain.

6. The best results obtained were due to drainage of the abscess either through the temporal bone or through an opening in the lateral wall of the cranium.

7. In order to discover cerebellar abscesses, situated towards the median line, they must be approached through the base of the petrous bone.

Dr. BOTY summed up his Report as follows :

1. Intra-cephalic collections of pus of otic origin are nearly always around the petrous bone, and they only rarely show themselves by definite symptoms.

2. Without waiting for signs of certainty or of great probability, it is best to act as promptly as possible, selecting a procedure by which it is possible to explore either the middle or the posterior fossa, according to circumstances.

3. The operation is always to be commenced by laying open the mastoid process and the tympanic cavity, and from thence the cranial cavity to be explored either upwards or backwards; opening, if necessary, the squamous portion of the temporal bone at its lowest point, and the roof of the antrum or the superior wall of the meatus at its most external part.

4. In nearly all cases, before incising the dura mater and the cerebral substance, the brain should be punctured through the intact dura, in order to make certain of the existence of an abscess; for when once the dura mater is opened by a knife the conditions are altogether changed, and the brain and its membranes are exposed to infection.

5. Irrigations of the abscess in the brain should be absolutely proscribed, even if artificial serum is used; for injections very easily carry infection into the cerebral substance or the ventricles, and often cause fatal encephalitis.

6. The drainage of the abscess should be carried out with

several fine indiarubber tubes; this drainage is one of the difficulties of the treatment of cerebral abscesses. The best mode of avoiding retention of pus is to renew the dressings every twenty-four hours.

7. Cerebral hernia, a frequent complication of cerebral abscesses, occurs more frequently when the opening in the dura mater is large. Care must be taken, therefore, that the incision in the dura is smaller than the aperture in the bone. Infection of the meninges and of the cerebral substance by the pus from the cavities of the ear is the principal cause of cerebral hernia; it is therefore necessary that the asepsis of the dressings should be very rigorous.

8. Cerebral hernia is to be treated by the most careful attention to cleanliness, and by moderate pressure; removal of the dead portion by the knife is only to be done when the cerebral tissue is covered by fleshy granulations.

9. The prognosis of cerebral abscess which has been opened should always be guarded; for, in spite of frequent recoveries, a great number of these patients succumb sooner or later to the progress of a deep infection, with the formation of fresh abscesses, penetration of pus into the ventricles, diffuse leptomeningitis, etc.

Sir WILLIAM MACEWEN said that in otitic brain abscesses, it was not only necessary to treat the aural and the cerebral foci but also to practise excision of the entire morbid track, passing from one to the other. The neglect of this rule was a frequent cause of relapses. It was of the utmost importance to use exploring instruments upon the brain with great gentleness; roughness might cause an irreparable disaster. Another caution was not to hurry unduly over the different stages of the operation. Adhesions form spontaneously over the lesions, in the sub-arachnoid space. If, after having incised the dura, it was found that no adhesions had been formed, the speaker's practice was to cover the wound for twenty-four hours with an antiseptic dressing, before exploring the brain; by that time adhesions would have formed.

For the anæsthetic he preferred chloroform to ether, as the latter tended to produce œdema of the brain.

The speaker's practice was to use no drain. After an incision as large as possible, and the removal of sloughs, he used a very gentle irrigation, and was of opinion that by the help of intra-cranial pressure the evacuation of the pus was thus complete. Occasionally he placed a small strip of gauze in the outlet.

He thought that there was sometimes a risk of air entering the

circulation through the mastoid vein, and alluded to an autopsy where the coronary vessels were found filled with air, and there was also some air upon the right side of the brain.

GRADENIGO, G. (Turin): *Upon a particular Syndrome of Otitic Intra-cranial Complications.*

A special form of intra-cranial complication is formed by the frequent association of the three following symptoms: purulent otitis media, with or without external suppuration; very intense pain, not only in the ear, but also over the whole corresponding half of the head, with predominant localisation at the temporo-parietal region; the appearance, after a period of time, varying from twenty days to two months from the onset of the otitis, of paralysis or paresis of the external rectus on the same side, without other ocular signs. This note is based upon six personal cases, besides three others communicated to the author by his Italian colleagues, as well as upon some found dispersed in otological literature.

The condition might be due to a focus of circumscribed leptomeningitis, which in most cases recovers at the same time as the affection of the temporal bone, but which might, in others, give rise to a diffuse serous or purulent lepto-meningitis.

BOURGEOIS, H. (Paris): *Bulbar Softening, with Disturbance of Equilibrium.*

A woman, aged forty-seven, was seized suddenly, without loss of consciousness, with a violent pain in the right half of the head, with intense vertigo, complete loss of equilibrium, tendency to fall to the right, and right myosis. In repose there was slight horizontal nystagmus; but a rapid luminous stimulus or a painful stimulus provoked a complete rotatory nystagmus. The test of centripetal negative pressure to the left, in the right ear, gave rise to great vertigo and intense rotatory nystagmus, with conjugate deviation of the eyes to the left. There was besides a certain degree of muscular weakness, and of want of co-ordination on the right side.

At the autopsy a focus of softening of syphilitic origin was found in the medulla, situated in the right lateral portion, extending in height to the lower half of the olivary region; destroying the lateral fasciculus of the medulla, the nucleus ambiguus, a part of the olivary body, the descending root of the trigeminal nerve, and the direct cerebellar fasciculus. The acoustic tracts proper and Deiter's nucleus were untouched.



MOURE, E. J., AND BRINDEL (Bordeaux) : *Five Hundred Cases of Operations upon the Mastoid Process.*

The authors presented synoptical tables of 500 cases of patients operated upon at the Otological Clinique, at Bordeaux, during the last nine years. Of these 269 were radical operations, the rest mastoid operations. There were 42 cases of cholesteatoma, six of phlebitis of the lateral sinus, nine extra-dural abscesses, five abscesses of the brain, and 12 cases of suppuration of the labyrinth.

In 38 cases the lateral sinus projected forwards; in 22 of these the sinus occupied the position of the mastoid antrum; in the others it was less than a centimetre distant from the external meatus. Amongst the cases of radical operation there were 18 deaths, all amongst those operated on in the course of complications. Of the cases of mastoiditis, 14 died. From the analysis of the causes of death, and from the anatomical peculiarities met with, the authors drew conclusions, the results of their personal experience in aural surgery.

POLI, C. (Genoa) : *A Case of Epilepsy of probable Aural Origin.*

An advocate, aged thirty-six, who had been doing nothing for two years, owing to neurasthenia from overwork, had suffered since May, 1903, from attacks of classic epilepsy at intervals of about a month. In May of the present year, without preliminary pains, the patient observed an offensive discharge from the right ear, which still continued. On examination, a fistulous track was found in the superior wall of the deep portion of the bony meatus. The membrana tympani was intact, and the hearing good. Labyrinthine symptoms were absent. There was slight tenderness on pressure at the situation of the superior attachment of the auricle. Ophthalmoscopic examination was negative, and no other abnormal signs were discovered. From the time that the discharge appeared the epileptic attacks ceased and have not recurred.

MASSIER, H. (Nice) : *Double Mastoiditis with Cerebral Symptoms, in the Course of Puerperal Infection; Recovery without Operation.*

A patient, aged twenty-six, was attacked by acute otitis media on both sides during the course of puerperal infection. There was profuse discharge from both ears with relief of pain, but without any fall of temperature. At the end of eight or ten days both mastoid regions became the seat of acute pain, which extended over the head. There was absolute deafness, high fever, furred tongue, delirium, prostration, and some vomiting. Koernig's sign

was absent, there were no convulsions or pupillary signs, and very little stiffness of the neck. The discharge from the ear was notably less. On the fourteenth day the patient was in the same serious state. Both tympanic membranes were red and bulging, the mastoid very tender. It was decided to operate the next day; in the meantime, however, both membranes were freely incised. The bad symptoms very rapidly disappeared, and the patient soon recovered without further operation.

BRUDER, P. (Paris): *The Objections to Hydrogen Peroxide Solution in Otolology.*

Peroxide solution of inferior quality contains free acid and may set up diffuse external otitis. Trouble may be caused, however, even by a solution of good quality. Its prolonged use in dressing ears may lead to maceration of the epidermis. In cases of cholesteatoma the use of peroxide of hydrogen solution may cause the mass to swell and cause pain. Lastly, the author considers that its use in cases of phlebitis of the lateral sinus, with extra-dural abscess, may be a cause of death from septic meningitis, owing to the penetration of bubbles of peroxide solution charged with septic particles through dehiscant points in the dura mater.

HOFFMAN, R. (Dresden): *Osteoplastic Operations upon the Frontal Sinus in Cases of Chronic Suppuration.*

In operations for chronic suppuration of the frontal sinus not only is it necessary to take away completely the focus of disease, but to do so without producing any deformity. From personal experience the author recommends osteoplastic operations in order to produce this double result. It is necessary, however, to preserve a large communication with the nose. For this purpose the author uses a spiral silver drain, which he leaves in place for three months.

MAHU, G. (Paris): *Models from Nature of the Accessory Nasal Sinuses.*

The author showed models representing the Caldwell-Luc operation for maxillary sinusitis and Killian's operation upon the frontal and ethmoidal sinuses. They were executed from preparations made upon the cadaver by the author.

HOFFMAN, R. (Dresden) gave a *Demonstration of Preparations and Drawings of Cysts of the Jaw with Descriptions of their Origin, Clinical Appearances, Diagnosis and Treatment.*

AUBARET, E. (Bordeaux): *A Contribution to the Surgical Anatomy of the Ethmoid.*

The author studied (1) the relations of the lacrymal passages

with the ethmoido-ungual cells; (2) the relations of the ethmoidal cells with the lacrymal bone; and (3) the anatomical facts showing the best way of reaching the ethmoid through the nose. He also discussed the relations of the ethmoid and the orbit, and the orbital contents; and, finally, the best means of exposing the ethmoid from the outside.

AUBARET, E. (Bordeaux): *Injuries of the Maxillary Sinus by Fire-arms and by Foreign Bodies.*

The author reported four cases of wounds of the antrum maxillare by fire-arms, with lodgment of the projectile in the antrum. Two were revolver bullets, and two were from charges of shot. The projectiles were extracted in two cases.

BOBONE, T. (San Remo): *Petroleum in the Treatment of Ozæna.*

According to the author petroleum has a bactericidal and stimulating action on the nasal mucosa. The addition of strychnine increases the latter effect. In order to disguise the smell, a little lemon-scented oil of eucalyptus is added. His formula is: petroleum, 40.0; oil of eucalyptus (lemon-scented), 0.50; nitrate of strychnine, 0.02. After antiseptic irrigation of the nasal fossæ and the removal of crusts, followed for the first few days by the application of cocain, the prepared petroleum is rubbed over the nasal mucosa with cotton-wool mops once every day. Care is taken to penetrate into all the hollows. The crusts and fœtid odour disappear very quickly, the mucous membrane becomes hyperæmic, and the secretion is increased. So far no recurrences have been observed.

ROYET, H. (Lyons): *Upon the Symptoms Produced by Salpingo-pharyngeal Adhesions, particularly from the point of view of Ear Troubles.*

These adhesions produce a complex group of symptoms of which the various elements may be grouped in different ways:

1. Objective symptoms: (a) aural—symptoms of chronic sclerosing otitis: symptoms of inflammation of the middle ear; (b) nasopharyngeal—more or less pronounced deformity and narrowing, which may even produce respiratory distress: inflammatory troubles due to retention of abnormal secretion in the recesses; (c) pharyngeal—chronic or acute inflammations, especially lateral; various modifications and deformities; (d) cervical—enlarged glands, with or without suppuration.

2. Subjective symptoms. All those of progressive sclerosing otitis. Neuralgic pains and torticollis.

ROURE (Valence): *Dilatation of the Eustachian Tube in the Treatment of Dry Median Otitis.*

The air douche, although useful for diagnostic purposes, is devoid of all therapeutic value in dry catarrh of the middle ear.

Catheterism of the tube and progressive dilatation by means of bougies constitute the best treatment. The neglect of this method is due to defective instruments. Those made of celluloid, whale-bone, of gum elastic with or without a metallic core, or of pure silver, always have certain defects. The author pointed out what should be the qualities of the ideal tubal bougie.

He showed (1) a steel bougie, partly spring and partly dilator. (2) A modification of the Eustachian catheter allowing the more convenient use of silver bougies.

YEARSLEY, MACLEOD (London), showed *A new Hand Masseur for Massage of the Ear designed by Mr. Richard Lake.*

FARACI, G. (Palermo): *A new Pump for Treatment of Ear Disease.*

The pump consists of an electric motor driving an air-pump for obtaining pressure up to three atmospheres, a sterilising apparatus for the air, a regulating valve, and a small jet for using with sprays.

KOENIG, C. J. (Paris): *Modification of the Eustachian Catheter for facilitating the return of Liquids accumulated in the Middle Ear.*

The modification consists in the catheter being channelled on its convexity.

KOENIG, C. J. (Paris): *Contribution to the Study of the Use of Bougies for the Eustachian Tube. Modification of the Eustachian Catheter allowing the simultaneous use of the Air Douche and the Bougie.*

By the use of this instrument the dilatation of the tube allows the passage of the bougie without pain or abrasion. The ring of the catheter is replaced by a little cannula leading into the principal canal of the sound, which serves as a passage for the bougie.

KOENIG, C. J. (Paris): *Lucae's Probe with Paraffin.*

The end of Lucae's probe is dipped into melted paraffin, and the little soft globule applied to the processus brevis of the malleus. The short process sinks into the paraffin, and massage can be used without much pain.



The cases which benefit most by this method are those of ankylosis, by thickening of the mucons lining of the tympanum in people of fifty to sixty years of age, without heredity, who have a spur or septal deviation with consecutive hypertrophic rhinitis and congestion of the tympanum. After the nose has been treated, catheterism and pneumatic massage benefit them greatly, but they are still more capable of deriving benefit from direct massage. It is naturally necessary to get rid of the congestion of the tympanum before resorting to the paraffined probe.

GOLESCEANO (Paris) : *Contribution to the Study of Atmotherapy.*

The author found that warm vapour produced the same results in nasal affections as warm dry air.

He described a simple apparatus for producing the steam and regulating its temperature, and he found this treatment useful in a large number of nasal affections.

LAFITE-DUPONT, J. A. (Bordeaux), showed an *Apparatus for the Administration of Chloride of Ethyl as a General Anæsthetic.*

SUAREZ DE MENDOZA (Paris) : *The Employment of Anæsthetics in the Operation for Adenoids.*

There is no agreement between those who advise general anæsthesia for this operation as to which anæsthetic should be employed.

Having dwelt upon the inherent risks of anæsthetics in general, and of bromide of ethyl in particular, the author argued that it was unjustifiable to expose the patient to risk in such a simple operation.

His conclusions were : (1) That general anæsthesia for removal of adenoids should be dispensed with as a rule ; (2) the numerous cases of death from ethyl bromide proved that the dangers of narcosis by means of this agent are as real as those of chloroform ; (3) the surgeon should only have recourse to narcosis in the operation for adenoid vegetations in those rare cases which are impossible to define beforehand, and when he is conscientiously convinced that special and exceptional circumstances justify the risk which must be run in administering an anæsthetic.

CHICHELE NOURSE.

## PROCEEDINGS OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY.

*Tenth Annual Meeting, held in Chicago, Illinois, May 30, 31, and June 1, 1904.*

*President* : Dr. NORVAL H. PIERCE (Chicago).

AN address of welcome was delivered by Dr. FRANK BILLINGS, of Chicago, on behalf of the local medical profession, after which the President delivered his address.

Dr. H. HOLBROOK CURTIS showed a *Set of Tonsillotomy Forceps*.

The instrument in his hands had proved to be very successful. It was made by Matthieu, of Paris. The advantage of this instrument was that in cases of children who had diseased tonsils, so small, however, that it was impossible to use a tonsillotome, the tonsil could be removed readily without an anæsthetic. It was remarkable with what facility one could get at the tonsil and remove it. He had done a great many operations with this instrument. In a flat indurated tonsil very often while operating one found two or three drops of pus which explained the recurrent tonsillitis met with in these cases.

The other instrument was a modification of the fenestrated forceps figured in Bosworth's work. He had adapted it to the conformation of the posterior wall of the pharynx. With a forceps with an obtuse angle one was apt to avoid a portion of tissue at the base of the vomer, but with a forceps at a right angle, or at five degrees less than a right angle, this little mass of tissue was entirely removed. It was this bit of adenoid tissue which furnished a starting-point for the recurrence of adenoid vegetations.

Dr. WM. S. BRYANT showed a *New Mastoid Gouge*.

It was the adaptation of a tool which was used for wood-carving. It had been found quite convenient in carving the mastoid process, and in cranial surgery. It could be used like a lever, and with it one could work with great accuracy, and a mallet was no longer necessary.

Dr. CHEVALIER JACKSON showed a *Tracheal Cannula*.

Dr. Day and the speaker had had about eight cases of post-typhoid fever perichondritis of the larynx, followed by stenosis, six of them requiring tracheotomy. In some cases, when the

abandonment of the tracheal cannula was attempted, the patient did not get air through the larynx, owing to cicatricial stenosis; consequently they performed thyrotomy, retracted the thyroid cartilage, eviscerated the larynx, clipping out all cicatricial tissue. To keep the larynx open, they devised a T-shaped tracheal cannula, one portion of which went up and another down. The portion that went up into the larynx kept the lumen of the larynx open until most of the danger from cicatricial contraction was over. Healing of the tracheotomy wound occurred around this, so that a T-shaped tube could not be introduced, and to overcome this they cut it apart in two sections. One piece was slipped downward into the trachea, the other piece upward into the larynx, and the two locked together by a collar slipping over them. Outside a tape-holder kept the dressing in place. The trachea could be measured through the tracheotomy wound before the thyrotomy, and the instrument could be selected to fit it. When in position the epiglottis came down and covered the top of the cannula, the entire larynx being filled with the upper part of the cannula. After the larynx was completely healed and its lumen lined with epithelium, one of the large intubation tubes was put in, in the usual way, through the mouth, the T cannula abandoned, and the tracheotomy wound allowed to close.

Dr. CHEVALIER JACKSON, in reply, said that after the laryngeal lumen had been covered with epithelium, one of the large intubation tubes was slipped in and the tracheotomy wound allowed to close. If this were put in immediately after operation, the post-operative swelling and œdema would render it dangerous if it should be coughed out. If the intubation tube should be coughed out, the œdema and swelling, attended with a certain degree of paralysis, would cause an immediate stenosis, and would probably kill the patient. Many patients had died in that way. Their method had been to allow the larynx to heal completely and regain an epithelial covering. They kept the tube in two or three months. At the end of that time some of the patients would let them take it out, while others would not. They realised the trouble incidental to cyanosis, and therefore they were very much averse to having the tube taken out. If the tube were taken out, say once a month, then there was very little or no danger of stenosis. The tube should be taken out at least once a month, because otherwise concretions would form on it. He did not offer it as an improvement on the O'Dwyer tube. There could be no improvement for the purpose for which the O'Dwyer tube was used. This tube, with wedge-shaped point put in the diphtheritic

larynx, might result in traumatism; but here the conditions were entirely different. Furthermore, one had the eviscerated larynx to deal with, requiring a large tube with a large inter-arytenoid swell and large retaining swell.

Dr. CHEVALIER JACKSON reported a *Case of Tonsillolith and exhibited the Specimen* for Dr. John S. Mabon.

The principal point of interest in this case was the exhibition of the specimen, as, unfortunately, the author did not see the patient until after the tonsillolith had been expelled.

Mr. S—, aged about fifty-five, for several months had been troubled with a cough, especially in the mornings. At times it was so severe that it would produce emesis. One morning it was so pronounced that he resolved to consult a physician. On his way he had an attack of coughing, during which he expectorated the tonsillolith. Dr. Mabon was rather incredulous, and asked the man if he had expectorated it on the sidewalk, from which he had recovered it. The man replied, rather heatedly, "I didn't imagine that it came from my throat because I took it out from my mouth."

On examination, the only abnormal condition apparent was a peculiar glairy appearance of the edge of the posterior half-arch on the right side. On introducing his finger Dr. Mabon found a cavity between the half-arches fully large enough to accommodate the specimen. There was no hæmorrhage following the expulsion of the tonsillolith, nor was there any denuded point on the membrane. It was his intention to have a section made of the specimen, and an analysis of the filings, in order to show both the strata formation and its composition, but the chemist advised against it, fearing destruction of its contour.

The weight of the specimen was 147 grains. Mr. S— told him that about ten years ago he expectorated a stone in the same manner, which was about the size of a split pea.

Dr. A. LOGAN TURNER, of Edinburgh, read a paper on *Some Points in the Pathology of "Bone Cysts" in the Accessory Sinuses of the Nose*.

For want of a better descriptive title, the author included under the term "bone cysts" those cases of cyst-like distension of the air-sinuses which were from time to time met with and which must be regarded as a pathological condition distinct from the suppurative affections of the sinuses.

Distension of the walls of the ethmoidal cell-labyrinth, of the frontal sinus, and of the antrum of Highmore, had been described,



but so far as he had been able to ascertain no similar condition of the sphenoidal sinus had been met with. The condition was the same in its clinical course and in its origin whichever cavity was affected.

An analysis of the various published cases illustrating this condition revealed the interesting fact that in some the bony cavity merely contained air, in others the contents were of a mucoid character, while in a third group of cases pus or mucopus was found.

Perusal of the literature dealing with cyst-like distension of the middle turbinal, so far as the author was able to gain access to it, furnished him with the report of forty-six cases, although a number of other instances had undoubtedly been met with. Of the forty-six cases, twenty-six occurred in women and seven in men, the sex in the remaining thirteen cases not being stated. The female sex therefore showed a considerable preponderance. In fourteen cases the right, and in sixteen the left, middle turbinated bone was the seat of the affection, while in five the condition was bilateral. In fourteen no statement was made regarding the side of the nose affected. In twenty-four cases the age of the patient was stated: the youngest was aged sixteen and the eldest aged sixty-five; three were below twenty and four above forty years of age. The majority, therefore, were in middle life. The condition had not been observed in childhood.

In regard to the origin of a small number of these cases, there was evidence to show that the condition was not a strictly pathological one, but rather the result of an excessive anatomical development or overgrowth of the normally existing air-space.

The chief symptoms complained of by a patient suffering from distension of the middle turbinated air-cell were usually those of gradually increasing nasal obstruction, commonly unilateral, and pain, varying in degree and in situation, sometimes of the nature of headache of a very severe type. Intra-nasal examination revealed a swelling of varying size presenting a smooth uniform surface, perhaps of a somewhat paler colour than the normal mucosa.

The author had been able to analyse fifteen cases of this affection to which the term "ethmoidal mucocele" might be justly applied. Of these, eight occurred in males and six in females, the sex in one not being stated. The majority of the cases occurred during adolescence. Thus, of the fourteen in which the age was recorded ten were met with between the ages of twelve and twenty, three between twenty and thirty, and one was only thirty-two years of age.

As regards the side of the nose affected, information on this point was to be found in eleven of the cases. In one the affection was bilateral; in ten, unilateral; the right side being affected in four and the left in six. In all, with two exceptions, the contents of the distended cavity were of a mucoid character, having a viscid tenacious consistence.

The author discussed at length distension of the air-cells situated in the lateral mass of the ethmoid bone, and the differential diagnosis.

Dr. D. BRADEN KYLE said the question of cysts, especially bone cysts, was important chiefly in regard to etiology, the classification of which he gave as follows: (1) those that formed in a cavity already existing, such as retention cysts, due to the dilatation of the follicles of the mucous membrane lining the cavity; (2) those resulting from some pathological process in the tissues, a cystic degeneration following inflammatory processes. About the nasal cavities, either in the turbinated bones or accessory cavities, cysts occurred, as had been shown, nearly all of which cavities communicated with the surface. Personally, he believed he had seen quite a number of cysts of the turbinate involving the ethmoid cells which were largely retention cysts. A curious feature regarding cysts was that, as a rule, they formed in a locality of good blood supply, with the exception of those found in a bony cavity. Occasionally one found cysts forming in cartilaginous structures, but this was rare. With the exception of dermoids, he believed the original exciting cause of cysts was undoubtedly an inflammatory one. With the minute openings of the various cells of the turbinates and accessory cavities, it could be readily understood why retention cysts developed.

Dr. FREDERICK C. COBB said he had had three or four cases of dentigerous cysts, and had, therefore, been much interested in what Dr. Turner had said. There were two or three points in his paper which impressed him as being of the greatest interest. One was that a diagnosis between antral disease and cyst after puncture of a dentigerous cyst was comparatively easily made. If one first punctured the wall, he went through the thin shell of the bone cyst, and then through this wall, if a tube were introduced, the fluid would come out freely around the cannula; then without removing the cannula, if the trocar were pushed farther, fluid would come out through the nose, so that one could differentiate easily between antral disease and cysts. It was an interesting thing to him to see whether these cysts subsided with simple puncture and the removal of the tooth. He took the trouble to follow his cases

for a year or two, especially those which had simply an offending tooth removed; and he found to his surprise that in that interval the whole bony wall had subsided, so that the face was normal in appearance, whereas before the puncture the antrum seemed much larger, showing that operation on these cysts was certainly frequently unnecessary, and that cases did not require more than the removal of a tooth and puncture to effect a cure.

Dr. ROBERT LEVY said, in addition to the symptoms enumerated by Dr. Turner, in the few cases of cysts of the middle turbinate he had seen, the most prominent symptoms had been reflex ones. In a number of instances there was pressure, inducing very pronounced neuralgic pains and sneezing. In one instance he felt he might attribute asthma, at any rate in part, to the pressure of a large middle turbinated cyst.

Dr. ROBERT C. MYLES considered it was probable that from the earliest time these bone cysts had been associated with nose trouble. Attention had been called to cysts in the ethmoidal region by ophthalmologists, and, if possible, it would be interesting to know the probable cause of them before beginning treatment. The condition seen in these cases was evidently due to extension of the pathological process, and this extension must be ascribed to confinement. Whatever the incipient change might be which took place to start these cysts in their embryonic state, so to speak, it needed further consideration. For instance, he could not understand how a pyogenic condition could produce bone cysts in the sense of secretion of mucus. He could not understand their purulency. It was thought that the secretions in passing through the membranes produced a pyogenic condition, and we had these cysts starting in the ethmoid region. Most of the members had undoubtedly seen cases in which there had been an extension of the pathological process from the sphenoid bone to the frontal, but which did not require any operation. These cases were easily cured by making a large opening from the cavity into the nose, inserting gauze, and retaining it until the walls had become hardened. Cysts of the antrum were moderately common, and the speaker's experience had been that the outer wall of the antrum became so thin that the finger could crush it in about the malar ridge, and one could easily penetrate this ridge for operative or other measures of treatment. As to frontal sinus disease, the last case the speaker had was that of a woman, aged seventy-three, who had a cyst extending from the frontal sinus to the anterior ethmoidal sinus. In removing the anterior ethmoidal cell it was his intention to remove the anterior part of the frontal sinus.

The woman's heart failed under the anæsthetic, and she was practically moribund. He had made a promise that in the event of serious trouble he would stop operating. He removed the anterior ethmoidal cells under cocaine, and made a complete opening from the front. At the end of three weeks the woman was perfectly well. How long the condition had existed he did not know.

Dr. LEWIS A. COFFIN read a paper entitled "*Report of four Operative Cases of Sinusitis in Children,*" and exhibited *Specimens illustrating the Development of the Sinus.*

He reported in detail the histories of four cases of sinus disease which he had met with in young children. He brought out the peculiar and somewhat obscure symptoms found in such cases, and dwelt particularly upon the question of the existence of a true inflammation of the antrum of Highmore in children, demonstrating from his specimens that the antrum of Highmore in the infant occupied an entirely different position relative to the orbit than in the adult, which rendered it anatomically almost incapable of being involved through trauma. By means of a beautiful series of wet specimens and lantern slides he further dwelt upon the relation to one another of the various sinuses in the infant and their mode of development, showing that the frontal sinus is absent in earliest infancy, only begins to develop after the seventh or eighth year, and often does not attain its full development until puberty.

Dr. A. LOGAN TURNER said the author of the paper raised the question of antral abscess in the infant and in young children. The speaker always had difficulty in understanding how such a thing could be, and he had favoured Dr. Coffin's view of the question along with Ropke and others, and took issue with Dr. Myles. One had only to look at Dr. Coffin's specimens to see how difficult it was to realize that there could be such a thing as chronic antral abscess in infants and young children. He was in sympathy with Ropke that the condition was probably an osteomyelitis of the superior maxilla, but whether it was of tuberculous origin or not was a matter of some contention. Some cases were undoubtedly of tuberculous origin. The question of the frontal sinus early in life was also interesting, and he still thought that the various opinions that had been expressed were due to the views which men took of the commencement of its development and of its full development. But there was so much variation in the sinuses, both in the adult and infant, that he was not surprised at variations in the time of development. He was



interested in what Dr. Coffin had to say in reference to what he presumed was an old theory. He had seen it mentioned before, namely, the probable development of the sinuses from pneumatic pressure. This was new to him, and it was certainly a view which required thinking over. With regard to the absence or presence of the frontal sinus, he found eighteen per cent. of skulls, even a little more, in which one or both frontal sinuses were absent. The difference in results was due to the way of looking at the matter. He considered the frontal sinus absent if it did not lie above the level of the fronto-nasal suture. Anything which lay more in the orbital or ethmoidal plate—anything that passed above the fronto-nasal suture—was frontal sinus.

Dr. J. A. STUCKY said he had a record of seven cases. He was sure he had had more than that, but he could only find the records of seven cases, which he had looked up. Four of these required an external operation. There was a fistulous opening, and a diagnosis had been made of dacryocystitis. All that was necessary in these cases was to enlarge the opening through the wound, curette thoroughly, and close it up. In the other three cases the external tissues were not perforated, and the condition was relieved by a free opening through the nose. The ages of these patients varied from two years and five months to eight years. In one case, aged eight, the maxillary antrum was involved. He made special mention that all of them had adenoids as well as enlarged tonsils. In addition to the fistulous opening in two cases, there was ectropium without any adhesions. He did not find a tubercular history existing in any of the cases he had seen, and all of them made good recoveries.

Dr. ROBERT C. MYLES said there was no doubt but that they were in the dark in regard to these cases. Probably it was better for many of the patients that they were in the dark. Those who were careful observers saw quite frequently infectious diseases invade these sinuses, and they of themselves got well frequently; and it was only in that class of cases in which there was stenosis, obstruction, or confinement of the pyogenic conditions which caused necrosis and sloughing of the mucosa, that one needed to operate. He thought the removal of the teeth which were still dormant in the antrum of children was very frequently the cause of the stubborn resistance to get better, and that if the region in which these teeth were buried and growing was let alone, and the surgery was directed above them, much better results would be obtained. The question of the frontal sinus and sphenoid was not nearly so important as the one of the antrum and ethmoid.

Dr. COFFIN, in replying, said that as regards the presence or absence of the frontal sinus it was altogether a matter of understanding terms, and he thought it was time the profession agreed upon a nomenclature of this subject. For instance, not long ago he listened to a paper in which the author spoke of the accessory ethmoidal sinuses. He wondered what was meant by accessory ethmoidal sinuses. When he examined the specimens, he found it was what Mouret had called ethmoido-lacrymal cell. It was very well named, and one knew exactly where to look for it. If one meant by frontal sinus simply a cavity in the vertical or cancellous portion of the frontal bone, he would be understood. If he meant a cavity in any part of the frontal bone, he was entirely right. In the specimen which the speaker showed there was just the external part of the ethmoid cell. This was all. One could call that the frontal sinus, if he so desired, but it was questionable. He was interested more particularly in what was said regarding the development of the cells, and it led up to the statement by Dr. Myles that frequently too much surgery was done in many cases, and that many of them got well without treatment. A great deal could be done for these patients with treatment, and this treatment did not mean surgery. One of the points he wanted to make especially in his paper was that in infants and children, and up to those shedding the first and the permanent teeth, a satisfactory external operation on the antrum could not be done.

DR. EWING W. DAY and DR. CHEVALIER JACKSON, of Pittsburg, Pa., read a joint paper on *Purulent Otitis Media complicating Typhoid Fever*.

The authors considered deafness, otitis externa, disorders of the perceptive apparatus, acute catarrhal otitis media, myringitis, and acute purulent otitis media as complications of typhoid fever.

In an examination of the ears of typhoid fever patients, they were at once impressed with the fact that practically all cases could be classified into two great classes—dulness of hearing, with and without evidence of inflammation of the middle ear. This dulness of hearing was analysed as to cause in fifty-one selected non-suppurative cases. It was found to be due to the tube in one, because the patient, a mild case, volunteered the statement that he heard better after swallowing three or four times, and on test was found to hear normally. Only twelve cases were catheterised as a test and they were all patulous. Dulness of hearing was found to be due to non-suppurative middle-ear conditions in seventeen cases. Some of these might have been tubal. The perceptive

apparatus, including the sensorium, was found at fault in twenty-three cases, both perceptive and conductive mechanisms in ten cases.

The only complications were erysipelas and mastoid empyema. Erysipelas occurred in three cases. It was located on the face and scalp of all, but it seemed doubtful whether the infection was secondary to the ear condition. It occurred in a number of cases of typhoid fever uncomplicated by otitis or any other lesion. It did not seem to influence the otitis in any way. Purulent otitis resulted from extension of the erysipelas in one case. Mastoid empyema occurred in twenty-six out of eighty-eight (29·5 per cent.) of the purulent otitis media cases. Mastoid tenderness occurred without pus formation in 31 per cent. of the cases. This appeared at the outset of the malady, and always disappeared, in some cases not reappearing, and in others returning with pus formation in the mastoid cells. The large percentage of mastoid complications in the purulent otitis cases was due probably to three causes—virulence of the infection, lowered resistance, and the almost constant dorsal decubitus which favoured the collection of pus in the antrum. This was especially true of cases where, on account of intestinal hæmorrhage or other reasons, the pillow was removed and the foot of the bed was elevated. Gravity had no opposition on account of the absence of the cilia in the mucosa of the aditus ad antrum. Every purulent case of otitis so treated by elevation of the foot of the bed that did not die too soon of conditions remote from the ear developed a mastoid empyema. There were four of these cases, one unilateral, and three bilateral. All the bilateral cases developed bilateral mastoid empyema. The low resistance was shown in one case, where, after cleaning out the mastoid down to healthy bone, the first dressing revealed large patches of bone, dead because it had not sufficient vitality to resist invasion. There were no peculiar features about the mastoid cases except the very rapid destruction of tissue and the fact that the temperature was absolutely normal for a week or more before the operation in fourteen out of twenty-six (53·8 per cent.) cases. Evidently there was little power of absorption in the mastoid portion of the temporal bone. When the pus broke through into the soft tissues of the neck, as it was allowed to in one case, the usual pus chart appeared. In six cases out of twenty-six (23·1 per cent.) the temperature ranged to 99° or 100° and back to normal. In five out of twenty-six (19·2 per cent.) the range was to 104° and back to 99° or 100°, but in these cases the authors could not exclude the possibility of its being due to pus in other parts or to a typhoid fever reinfection.

Dr. EDWARD B. DENCH considered that what was said regard-



ing the involvement of the perceptive mechanism in these cases was open to question. It was not necessarily due to involvement of the labyrinth. It was due to the involvement of the higher cerebral centres. The authors spoke of the complication occurring in eighty-eight out of seven hundred and eighty cases, which was only a fair proportion of what one might expect in cases of acute infectious disease. One frequently found mixed infection in a great many cases of acute inflammation of the middle ear complicating the acute infectious diseases. A mixed infection was oftentimes a simple infection. As to the appearance of the canal: in some the fundus was filled up by an epithelial plug, and this plug undergoing disintegration, when examined, was found to contain certain bacteria. This varied in different cases exactly the same as one found an acute purulent otitis occurring as a complication of any acute infectious disease. The appearance of blebs in the external auditory meatus and on the surface of the membrana tympani seemed to be characteristic of a severe form of otitis media and clinically characteristic of typhoid fever. The development of acute otitis media in the course of typhoid fever depended very much upon the surroundings of the patient—that is, whether the patient was under the best hygienic surroundings or not, and upon the conditions of the patient at the time the typhoid infection occurred. This was borne out by the experience the speaker had had in typhoid fever cases. He had found a complicating otitis media rare in typhoid fever. He thought the resisting power of the patient at the end of the second week, or the beginning of the third week, and from that time on, was a sufficient reason for the late development of acute otitis media. The otitis was simply favoured by the run-down condition of the patient. This was the exciting cause. The dorsal decubitus was an important factor in favouring infection of the tympanic cavity by germs which might be present in the naso-pharynx.

Dr. J. A. THOMPSON asked the authors whether they had under observation in their series of cases a complication that was sometimes confusing in diagnosis, but when observed accurately it was not, and that was abscess of the parotid gland, which penetrated to, and caused apparent suppuration of the ear, when the ear itself was not involved. He had been asked twice in the past year to make mastoid operations on such cases and had been able to demonstrate in both from the origin of the swelling that a large amount of pus came from a suppurating parotid gland. Nothing more was necessary than a careful external incision to avoid the



facial nerve. With this in mind, the diagnosis ought to be comparatively easy in these unusual cases.

Dr. J. A. STUCKY stated that eighteen months ago he was called to see in consultation a typhoid fever case in which there was a little ear trouble in the second or third week of the disease, which very readily yielded to local treatment. Ten days later the patient went into a delirious condition. He was told about it, and suggested the possibility of mastoid involvement, and perhaps of otitic meningitis. The patient died, and at the *post-mortem* examination both mastoids were found filled with granulation tissue, the epitympanic wall eroded, the middle ear full of pus, and Eustachian tube patulous. Since then he had held five *post-mortem* examinations on cases of typhoid fever, two of them complicated with pneumonia. None of the five presented at any time symptoms of ear trouble, yet all showed degeneration of the mastoid cells and antrum, with the middle ear filled with pus. He was beginning to suspect, in patients with typhoid fever having that form of delirium with head tossing from side to side, involvement of the mastoid. So far as he knew, there were no pathognomic symptom or symptoms of mastoid involvement. Some of the worst cases of mastoid trouble he had operated on had absolutely no symptoms of mastoid disease, so far as pain, swelling, etc., were concerned. He was informed by Dr. Von Klein, who was present, that in his investigations he had found it recorded by eminent observers that the *Bacillus typhosus* and *pneumococcus* were frequently found in the ear when they were not found in the lungs, in the alimentary canal, or anywhere else. Whenever he saw involvement of the lymphatic system in thyroid fever or in pneumonia, he suspected mastoid suppuration as a probable cause.

Dr. CARL E. MÜNGER called attention to a case of mastoid involvement in typhoid fever for the purpose of emphasising the point made by Dr. Dench in regard to the time of occurrence of the complication, which was during the latter part of the disease. In his case it occurred during convalescence.

Dr. JAMES F. MCKERNON believed it was just as important to make a frequent aural examination in typhoid fever as in any other of the acute infectious diseases. If these examinations were more frequent, there would be less trouble following that disease from chronic catarrhal affections of the middle ear and of the labyrinth. So far as the prognosis in these cases of middle-ear trouble was concerned (and he meant the chronic type following typhoid fever), in almost all cases it was bad, so far as recovery of normal hearing

was concerned. He differed from one of the previous speakers and believed that the disturbances were distinctly of the labyrinthine type, and not of the cerebral.

Dr. CHEVALIER JACKSON, in replying, said he would like to refer to extreme tenderness over the mastoid in the early days of the otitis. In many of these cases, on the first day of the appearance of the discharge, the mastoid would be so tender that the patient would not allow one to touch it. Only a few of these cases ultimately developed pus. Sooner or later they all subsided, and whether it was a true periostitis or not he did not know. When pus formed in these cases there was usually no tenderness. The ordinary mastoid symptoms were often absent, and yet the entire mastoid would be found broken down. There was no tenderness at all in some cases. One case in particular was brought in from a hospital in one of the smaller cities. The patient had typhoid fever, and was sent in as a typhoid case. There was a slight discharge from the ear, and in palpating over the mastoid one could feel that the whole cortex was broken in. One could feel a loose sequestrum composed of cortex. The whole mastoid was broken down, and yet the patient would not acknowledge that it was tender. In regard to the criticism concerning the bacteriology of these cases, the statement in the paper was that acute purulent otitis media was usually, not invariably, mono-microbic. In regard to epithelial plugs and blebs being characteristic of typhoid fever otitis, this was not stated. The paper was simply a record of observations. Very many of the cases presented the ordinary picture of acute otitis media. In regard to parotitis, Dr. Thompson had spoken of abscess of the parotid gland bursting into the canal. This did not occur in the cases of the authors, for the reason that the cases were all kept under observation and as soon as parotitis developed the parotid gland was incised long before there was pus formation. Pus did not form at all, and for that reason they did not get the kind of cases referred to. As to the diagnosis, one of the speakers stated that it was comparatively easy, and that after the discharge began an immense quantity of secretion poured out. It was bloody serum to begin with, and later became purulent in spite of all they could do to keep the parts aseptic. Out of eighty-eight cases of purulent otitis media, twenty-five went on to mastoid abscess. In spite of the best care they gave these cases, watching them every day, examining them with mirror and speculum carefully, they could not prevent the development of mastoid abscess. One of the speakers said that he did not regard the number great—that is, eighty-eight cases of purulent otitis media out of seven

hundred and eight cases, which meant that about 11·3 per cent. of the cases of typhoid fever developed purulent otitis media. That percentage seemed to them to be enormous; but it had declined to no cases at all. Their research into the etiology was very extensive and interesting, and he regretted the lack of time that prevented it being read for discussion and criticism.

Dr. JAMES F. McKERNON, of New York City, reported a case of *Chronic Otitis Media, complicated by Chronic Mastoiditis and Jugular Bulb Thrombosis, with Operation and Death.*

The patient, a boy aged five, had had scarlatina seven months previously, with a discharge from both ears. One ear ceased running after six weeks; the other continued to discharge intermittently. During the periods of intermission the child was peevish, drowsy, and constipated, the tongue coated, the breath foul. There were headache and earache. While the ear discharged, the patient's condition was approximately normal. Three weeks after the ears became affected there was pain behind both ears, worse on the right side, for ten days. On examination the right canal was found red, excoriated, and filled with a foul, thick discharge. The drum was perforated over the Eustachian orifice, and in the posterior superior quadrant granulations and dead bone were discovered. The left drum had healed. A diagnosis of intra-tympanic caries was made, and an operation advised, but refused, although the dangers of delay were pointed out. Under the usual palliative treatment the discharge stopped for a time, but recurred. About two months later the condition within the ear was found somewhat better. Operation was again urged, but was declined as before. Three months later the discharge increased again, and operation was agreed to. Examination at this time failed to reveal any signs of mastoid trouble, but the general physical condition was not so good. Temperature 99° F. When the mastoid was opened the cortex was dark; the antrum, zygomatic root, and several medullary spaces behind the sigmoid groove contained thick creamy pus. The bone was necrotic between the canal and the sigmoid groove down to the bulb. The posterior wall of the canal was removed, and the typical Schwartze-Stacke operation done. A skin graft was placed over the entire middle-ear cavity and antrum. All went well until the eighth day, when the patient complained of headache and photophobia and became restless. The temperature rose to 104° F., preceded by vomiting. The condition gradually improved for a week, with no marked variation in temperature. Several consulta-

tions were held, and irregular typhoid, central pneumonia, and meningitis were suggested. On the eighth day the child became drowsy and irritable, complained of posterior headache, and refused nourishment. After some delay in obtaining permission, an exploratory operation was performed, the writer suspecting an intra-cranial condition, resulting from the previous long suppuration. The child's physical condition at this time was poor. The bone over the sinus being removed, an incision an inch long was made, and a gelatinous clot was removed from the torcular end, establishing a blood current from that direction. The bulb was then curetted and some firmer clot removed without establishing a flow of blood. The jugular vein was therefore resected, together with several enlarged glands. The patient's condition was good at the end of the operation, but he never regained consciousness, and died twenty hours afterwards. No autopsy. The author has since had two other cases with a similar history in which early operation resulted favourably. He was unable to say whether or not any other intra-cranial condition existed in the case detailed, but if so, it was obscure. There were no chills or chilly sensations to suggest sinus involvement.

In conclusion, the writer sounded a note of warning in atypical cases against delaying too long a search for the cause in the original focus of infection, when the patient did not progress well.

Dr. EDWARD B. DEXCH agreed with the author that a good many of these cases ran an atypical course. He reported some time ago a case very much like the one narrated in which there was a low temperature. Nature had looked after it and apparently he had to deal with an aseptic clot, with complete obstruction of the sinus. He had never seen a case of acute thrombosis with low temperature. He had seen cases in which the sinus had been exposed and obliterated as the result of a previous inflammatory process. One point which interested him was with reference to the advice given to patients with suppurative otitis media. He agreed with Dr. McKernon that, as a general rule, these cases must be operated on. There were certain exceptions, however, and he was afraid some had been a little too hasty in recommending immediate operation. He had in mind a case which came to him with an acute exacerbation of chronic suppurative otitis media. What was needed was to relieve the acute symptoms. He said to the patient that an operation was imperative for the relief of the chronic suppuration which had existed before. The patient's general condition was fair. Ten days after she came to him with acute symptoms he operated upon the chronic condition. The operation was absolutely



successful. She was not on the operating table more than an hour and a half. The cavity was lined with epithelium and he felt perfectly safe. Within three days thereafter she died from pneumonia. He thought his judgment would have been a little better had he allowed her more time to recover from the acute attack rather than urge immediate operation. He thought it was dangerous to wait, and that was the reason he advised immediate operation. This case illustrated in a striking manner how careful one must be not to urge too early an operation. There was another question that came up, namely, the age of the patient. He recalled a woman, aged sixty-seven, who had had suppurative otitis media ever since she was six years of age, and he had been rather strongly urged by the patient and relatives to operate. She had a good free opening in the tympanic vault; the tympanic membrane was destroyed; there was free drainage. In such a case his advice was to keep the ear clean and not operate unless acute symptoms developed, for the reason she probably would not live more than four score years, and if she had had this trouble for sixty years, she would certainly be able to go thirteen years more without any trouble. He might be wrong in his judgment, but to operate on every case of chronic otitis media because there was suppuration was unwise. He believed, however, the majority of cases should be operated on, and the only way a large proportion of them could be relieved was to do a radical operation, with entire destruction of the tympanic cavity, opening the mastoid antrum, middle ear, and external canal, and lining it with skin. In people of fifty and sixty years of age, who had had this trouble for many years, and the discharge from the ear was not undermining their health, a good deal could be done for them by keeping the ears in a sanitary condition, and one might allow many of these patients to go on as they were rather than subject them to an operation which, although it was but slightly dangerous, possessed an element of danger the same as any other operation.

Dr. FRANK ALLPORT said a very large majority of the cases of chronic otitis media ran a certain course for years, especially if subjected to good local treatment, and nothing very serious occurred. When one was called upon to advise as to what the patient should do, he was in a position to give the advice without any hesitation whatever to submit to an operation. Nevertheless, cases of this kind gave us an opportunity to preach to ourselves and to our patients as to what was the average course to pursue. What advice should be given in the vast majority of these

cases? Dr. Dench's remarks were *apropos*. One had to be governed by the circumstances and conditions of the case. Perhaps there was scarcely any one who would not give advice similar to that given by Dr. Dench to an aged person with regard to operating upon a quiescent chronic purulent otitis media. Nevertheless, at the present time the profession was steadily becoming more and more from year to year confronted with the problem as to what could be done in these cases. A very large majority of them were not tympanic in their nature nor tubal. Most of these cases had their pathological supply from cavities that were at the back of the tympanum—the aditus, the antrum, and, in many cases, the cells themselves; although in the majority of cases he had operated on the cells had not been very much involved. Provided trouble was there—and it was in most cases—it was known that it was beyond the reach of ordinary methods. We could not reach the aditus ad antrum and cells by the ordinary treatment, with syringing, cleansing, powdering, and drying. It was beyond our reach, and therefore it seemed to him that in not advocating operative procedures in the average case, after the disease had run a reasonable length of time—six or eight months or more—under good treatment, and had not yielded, we were not pursuing the proper course. He considered it good advice to say to these patients in the vast majority of cases that they ought to submit to a radical operation. This was certainly the course that was advocated in all other fields of surgery. Not for one moment would general surgeon allow necrosis or pathological tissue to exist in other portions of the body without advising its extirpation, and he did not see why otologists should go on treating these cases by syringing, cleaning, drying, etc., when it was known that such treatment could not possibly reach the real seat of the trouble. All realised that many of these cases were kept in a reasonably quiescent condition. Some remained healed for an indefinite length of time if there were good drainage, but even then, if the pathological supply was situated in the mastoid portion of the temporal bone, lodged in a position where it could not drain out, the conditions were such that ordinary treatment could not possibly reach them. While he did not believe in the wholesale advice that all of these patients should submit to operation, he thought the members of the profession should have the courage of their convictions, and they should advise in the vast majority of cases that these patients undergo a radical operation.

Dr. ROBERT C. MILES said Dr. McKernon had presented the report of an interesting case, which was worth more than a

hundred successful cases. The accessory sinuses and middle ear were always presenting surprises. He had often asked otologists, but never received any answer, as to what percentage of middle-ear suppurations were fatal. In what percentage of cases was it absolutely essential to carry out operative procedures? A large percentage of these cases got well of themselves. What was the percentage of risk attending operation? As we advanced and became better acquainted with the anatomy of the mastoid process and surrounding parts, and as we became accustomed to removing these parts, liberating the confined pus and removing pathological conditions, operation was becoming more and more safe; and he thought the essential points in regard to operation were a thorough study of the anatomy and acquaintance with the method by which we removed the cortex and the parts that lay between the external surface and the part we were endeavouring to get at.

Dr. A. LOGAN TURNER said that when he asked Dr. McKernon in a conversation what was a chronic middle-ear discharge he did not mean to suggest for one moment that he was not justified in doing a complete radical operation in the case reported. Should a complete mastoid operation be done in cases which had only discharged for seven months? What was the time limit between a subacute and a true chronic otorrheal discharge? He would himself say we were justified in allowing a case to discharge for a year before we were finally forced to do the Stacke-Schwartz operation. In regard to the remarks made by other speakers concerning the percentage of fatalities, this was always an interesting subject, also in regard to the age of the patients. Up to thirty years of age the intra-cranial complications were much more frequent, but after that age they were very much diminished. The older the patient became the less the risk of these intra-cranial complications.

Dr. NORVAL H. PIERCE said that the vast majority of cases of jugular bulb thrombosis were not found in the chronic cases, but in the acute ones, say within the first two or three weeks of the beginning of the disease, and after that within six months of the development of the process. In fact, it was rarely found in chronic suppurations of the middle ear.

Dr. McKERNON, in replying, said he had very little to add except to say that a low temperature did occur in jugular bulb thrombosis. The cases which he reported two years ago were watched from the onset of the disease; they were operated on, and a clot taken from the jugular bulb and sinus. The patients

made good recoveries. During the past year he had seen one case in his own practice and one in the practice of a colleague, in which there was a continuous low temperature from the onset. There might have been a high temperature previous to the time the patients came under observation. But if so, that was the only elevation of temperature. The case was not watched before coming under his observation. While this was not at all the rule, he believed there were a number of them attended by low temperature. In his case the clot was well organised. He had been misunderstood in regard to advocating operation on every case of purulent discharge from the middle ear. One of the requirements he made was that when dead bone was present he would operate. He did not wish to be misunderstood in regard to that point. If on first examination, after cleansing the canal and the middle ear, he found, by bringing to his aid the probe, diseased bone—he did not mean exposed bone—he believed it was the duty of the otologist in every instance to advise operation. He should lay the matter distinctly before the patient or family, and if they did not wish an operation performed, let them accept the responsibility of the future outcome of the case. If one simply said to them, "This case might go on for years without giving much, if any, trouble," they would quote him always as saying that, and if the case should end fatally, he was blamed by the whole family, relatives and friends. He did not wish to be misunderstood in regard to that point. Only when dead bone was found present upon examination would he advocate operation. In no circumstances would he advocate an operation simply for a purulent condition without dead bone being present. There was another point referred to by Dr. Dench. If one found dead bone present upon first examination, he was very apt to find it present throughout treatment. There might be a covering over of the exposed bone, and one might find the necrotic process quite as distinct several months after examination as when he first saw it. In the case reported drainage was poor. There was a large opening when the case was first seen for the tubal entrance in the middle ear, which subsequently became closed, but the opening on a level with the short process was still present. There was granulation tissue present, which protruded through the opening, and this was evidence of intra-tympanic caries in a case of continued suppuration. If he understood Dr. Myles correctly, he spoke of the percentage of risk attending these operations. He did not think there were enough cases collected to give any definite data in regard to that. In a collection of something over four hundred and sixty cases of purulent disease of the middle ear, data which he collected himself,



7 per cent. of that number had intra-cranial complications. Regarding Dr. Turner's question as to what comprises a chronic condition of the middle ear, he would simply repeat what he stated in a paper read before the Association last year; namely, given a case of purulent disease of the middle ear, with or without treatment, that had lasted six months, he would classify it under the chronic stage, and he thought one was justified in so doing. Dr. Turner's remarks in reference to the number of intra-cranial complications which took place in these cases were correct, the larger number of them occurring under thirty years of age. As these patients became older, they bore resistance much better, as the cavity of the bone through which the disease had travelled was thicker and longer, and in some instances the virulent condition of the poison became somewhat eliminated.

Dr. G. HUDSON MAKEN, of Philadelphia, read a paper entitled "*What the Laryngologist may do for the Correction of some of the more Common Forms of Defects of Speech.*"

The author considered that they had neglected a field which seemed to him to be of great importance. He referred to that of defect of speech, the treatment of which had been either entirely neglected or relegated to quacks. It had been estimated that there were over three hundred thousand stammerers in the United States alone, and this was only a small portion of those having some form of defective speech. Every one of these cases, in his opinion, was a proper subject for medical supervision, and he thought that these disorders of speech should come within the domain of the laryngologist, rhinologist, and otologist, and that defects of vision were scarcely of more importance than defects of speech. He estimated that the exciting cause in 98 per cent. of all cases of stammering might be looked for in a morbid condition of some portion of the respiratory tract. Adenoids, enlarged turbinals, and chronic rhinitis were causes of stammering. The laity and some physicians thought children would grow out of speech defects, and, therefore, nerve habits were established before any treatment was given. The author explained why children stammered, and he also explained his treatment, which consisted in the removal of all physical obstructions to normal respiration, and in the teaching of physiological breathing and the elementary sounds used in language. Digestive disturbances should be corrected, tobacco and stimulants of all kinds interdicted, and the nervous system supported by nourishing food and plenty of sleep. A little mental science must be wisely mixed in with the treatment,

and suggestion always played an important part. He had found the use of hypnotism of immense value as an adjuvant in certain selected cases, and he emphasised the importance of syllabic speech. There were forty-four elementary sounds used in language, represented by the letters of the alphabet. The articulation of a word was a combination of two or more elementary sounds arranged in their proper sequence, and a syllable was a combination of elementary sounds which might be given with a single respiratory impulse. Words of two or more syllables should have as many impulses as there were syllables. Stammerers should be taught to speak and as far as possible even to think in syllables.

Dr. MAX A. GOLDSTEIN said there was one feature about the paper which he thought might bear further elaboration—one the author touched on, but did not develop as much as he did the local manifestations and their remedy, and that was the actual cerebral deficiency or difficulty encountered in speech defects in the stammering and stuttering form. Of course, this touched the question of defective development, not only of speech in its central origin, but also of sight and hearing. In a number of cases with which he had come in contact lately these features had borne a close relation to one another. He found in the development of the speech faculty of such a patient that the general education of the child, both as regards defective hearing and defective sight, must be considered and given training.

Dr. HANAU W. LOEB said that the author had for some years been endeavouring to bring before the various laryngological associations this subject in such a way that it would be better appreciated, not only from the standpoint of what could be done for these patients, but also from the standpoint of what the laryngologist could and should do. He had brought before the Association in a very succinct way general rules and observations which were to be observed in connection with the attention which these cases required, and he thought really, after all these years of work, it was high time for the profession to take more interest in the subject and aid him in developing this work, taking it out of the hands of those who were incompetent. He thought hardly anything could be added to the somewhat elementary consideration of the subject as presented. He did not quite fully agree with the author with reference to respiration. If he understood him correctly, he stated that on account of a lack of proper respiration there was an accumulation of carbonic acid in the blood which interfered with speech production. This would be a difficult thing to prove. It was known that the respiratory centre was stimulated by a lack of

oxygen. If the respirations were not sufficient to carry off carbonic acid, they were not sufficient to supply the requisite amount of oxygen, and the consequence would be that the respirations would be increased in frequency and the supply of oxygen be less. Unless the author had ample proof, he would be inclined to differ from him in that particular.

Dr. PRICE BROWN referred to a case that recently came under his observation. A clergyman, who had been preaching for ten years, had tried his best to improve his vocalisation, but often found it impossible to sound the vowels separately. He thought the difficulty would be with the consonants, but these he could sound very well. The clergyman came to him with the idea that possibly some nasal or throat operation might remedy the defect. He examined the throat and found several adenoids. These he removed, not with the expectation that their removal would have any effect in improving his speech. However, very soon after the operation the patient was able to sound his a's and i's distinctly, but had difficulty sometimes in sounding his o's, and would make great efforts to do so. However, after due time following the removal of the adenoids he could sound his vowels as well as his consonants.

Dr. MAKUEN, in replying to the remarks of Dr. Goldstein, said that he did not go into the psychology of stammering particularly, although he thought the cerebral conditions had more to do with stammering than with some of the other forms of defects of speech. There were some stammerers who did not know they stammered, and if they were not told they would never know they stammered. There were some forms of defective articulation in which speech was unintelligible and the person did not know that there was anything peculiar about his speech. This was a curious thing. Each one of us had peculiarities of speech. A man with very defective articulation oftentimes did not know that it was defective until his attention was called to it. It satisfied his own ear and his own mind, and that was sufficient. Mental expectancy was often an immediate cause of stammering, and he mentioned hypnotism as a possible means of removing this condition. The relation of hearing to the various forms of defects of speech was interesting; they were closely related. He had a little child under his care, aged five, who never spoke at all until about a month ago. The child heard the sounds of music, enjoyed operas and concerts, but did not know the meaning of the sounds of speech. The child could not interpret words. Such a child must be taught just as a baby learned the meaning of words. The

child was not deaf except for speech. With reference to the remarks of Dr. Loeb concerning the effect of carbonic acid upon the circulation of the brain, he would say that he mentioned it as one of the possible causes for the aprosexic condition so often found in stammerers. The stammerer often did not think properly, and therefore could not speak properly.

(To be continued.)

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## Abstracts.

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### FAUCES.

**Newcomb, J. E.** (New York).—*Bone and Cartilage in Tonsil.* "Boston Med. and Surg. Journ.," September 15, 1904.

The case is described of a woman, aged thirty, in whom the tip of the styloid process projected into the tonsil. Two theories are suggested as to the origin of bony and cartilaginous deposits in the tonsil: (1) that they are vestigial remains of the second branchial arch (2) that they are due to metamorphosis of connective tissue.

Macleod Yearsley.

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### PHARYNX.

**Santalo** (Madrid).—*Retropharyngeal Abscess of Articular Origin.* "Boletin de Laringol., Otol., y. Rinol.," Madrid, 1904, p. 295.

The patient, a soldier aged twenty-one, of feeble constitution, on being relieved from guard complained of tremors and pains in both legs; two days later there was pain in the back of the neck, which prevented any movement of the head. The former symptoms disappeared, but the latter continued with exacerbations, especially on cold days. Intense dysphagia followed, and the patient was admitted to hospital a month from the first symptoms. A large fluctuating swelling of the posterior wall of the pharynx was observed, which was comparatively painless on digital examination. Digital pressure at the occipito-atlantal level caused great increase of pain. On the right side, below the mastoid and behind the border of the sterno-mastoid, was a swelling about the size of a hen's egg, painless, fluctuating, and without discoloration of the skin. The case was diagnosed as one of retropharyngeal abscess, originated by a white (? tuberculous) cervical tumour. The cervical swelling was opened under chloroform and the curette was freely used down to the affected bones. The dysphagia, however, not only increased, to the surprise of the author, who expected the pharyngeal abscess to discharge itself through the wound in the neck, but attained such a degree that it was decided to open the abscess. A quantity of grumous pus was let out, and the patient had temporary relief. The pain, however, recurred, followed by paresis and complete paralysis of the right arm, then of the



left, and finally of the legs and sphincters. The autopsy showed that both abscesses communicated with the occipito-atlantal articulation. The left lateral mass of the atlas and the corresponding occipital surface were eroded by tuberculous caries.

James Donelan.

**F. E. Hopkins** (Springfield, Mass.).—*Neuroses of the Pharynx*. "Boston Med. and Surg. Journ.," September 8, 1904.

The author classifies pharyngeal neuroses as abnormalities of sensation, neuralgia, reflex neuroses, spasmodic disturbances, vascular neuroses. He considers all patients exhibiting these neuroses are neurasthenic, and thinks most reliance must be placed upon general treatment, although local treatment must not be forgotten.

Macleod Yearsley.

**G. A. Leland** (Boston).—*Cicatricial Stricture of Pharyngeal Orifice relieved by Plastic Operation*. "Boston Med. and Surg. Journ.," September 15, 1904.

Male, aged thirty-five, the subject of very extensive scarring of face, fauces, and buccal pharynx, due to ulceration. The velum palati and tongue were firmly adherent to the posterior pharyngeal wall. Dilatation was tried, but the cicatrix continued to contract. Finally, tracheotomy was necessary. His condition in October, 1900, was such that the only entrance to the œsophagus from above the tongue was about sufficient to admit a small probe. The glosso-pharyngeal adhesion was about half an inch thick. The velum palati was completely adherent, the only opening being about 1 cm. by  $1\frac{1}{2}$  cm. near the hard palate.

Under cocain a suture was passed through the orifice, and as much of the cicatricial mass grasped as possible, the thread coming out near the right lateral wall of the pharynx. After breaking several needles, about 3 cm. were enclosed in a heavy double silk suture. The result was good, and he was dismissed on January 1st, 1901. He has been admitted to hospital to undergo a similar operation on the left side.

The salient process is the uselessness of dilating such cicatrices. An interesting point is that the patient was able to nourish himself for seven months *per rectum*.

Macleod Yearsley.

## NOSE.

**Santalo** (Madrid).—*Alveolo-Nasal Fistula*. "Boletin de Laringol., Otol., y. Rinol.," Madrid, 1904, p. 299.

The patient, a soldier, fell from his horse nine years previously, breaking his second left incisor. Later he broke the two next incisors and canine. He complained of an unpleasant smell and taste. A probe could be passed through the incisor socket. The fistula was treated by curette and galvano-cautery and cured.

James Donelan.

**H. L. Swain** (New Haven, Conn.).—*Facial Asymmetry as a Cause of Deformities of the Nasal Septum*. "Boston Med. and Surg. Journ.," September 8, 1904.

This paper is a sequel to the same author's paper on "The Arch of the Palate," and is the result of work at the measurements of the vertical and horizontal diameters of the posterior choanæ, and observations on the

asymmetry of the two sides of the face and head in certain races and individuals, chiefly Hawaiian and flathead Indian. His conclusions are: (1) Adenoid obstruction does not always and may never cause over-arching of the palate; (2) over-arching of the palate does not always produce bends of the septum; (3) over-arched palates and bent septa often occur together, and each is more frequent in leptoprosopic skulls; (4) leptoprosopic skulls and faces almost never exist in a marked degree without some distortion or over-arching of the palate and changes in the nasal cavity; (5) in a young child about to develop into marked leptoprosopia pronounced nasal stoppage by adenoids cannot fail to add to the degree of deformity; (6) if the first teeth are removed early and the dental arch disturbed, then the palate will more easily become narrowed and pointed in its own arch; (7) the whole tendency is more often inherited than acquired.

Macleod Yearsley.

**Gibb, J. S.** (Philadelphia).—*Sepsis and Asepsis in Intra-nasal Surgery*. "The Therapeutic Gazette," September 15, 1904.

The author's conclusions are as follows:

1. In intra-nasal operations, other than careful cleansing of the mucous membrane to free it of crusts, pus, inspissated mucus, and foreign matters, no special antiseptic precautions are necessary.

2. Careful antiseptic preparation of the hands of the surgeon, the instruments, gauze, cotton, etc., is desirable.

3. Sepsis is not the rule after intra-nasal operations, and when it does occur is usually mild and transient; but it may be rapid, severe, and grave.

4. Nasal sepsis is manifested by follicular tonsillitis, inflammatory changes in the nasal chambers, and especially in the wound, and in some cases acute otitis media.

Macleod Yearsley.

**G. H. Makuen** (Philadelphia).—*Neuroses of the Nose*. "Boston Med. and Surg. Journ.," September 8, 1904.

The author divided these manifestations into two classes, the sensory and the reflex. He expresses himself sceptical as regards the latter, although he admits that the following are reflex neuroses of undoubted nasal origin—sneezing, cough, glottic spasm, and asthma.

Macleod Yearsley.

## ACCESSORY SINUSES.

**Guizez.**—*Maxillary Sinusitis, owing to a Misplaced Tooth*. "Annales des Maladies de l'Oreille, du Larynx, du Nez, et du Pharynx," February, 1904.

A woman consulted the writer for a purulent discharge of the left nasal fossa. The history of the case was as follows: In June, 1902, she commenced to suffer in the region of the left upper molars. Dental inflammatory attacks occurred repeatedly, attended with very violent pains. On July 13, 1902, the first molar was extracted, but no relief followed; in fact, the pain was increased for some days. Cicatrisation of the alveolus did not proceed satisfactorily, and a dental fistula remained

at the site of the extracted tooth, whence issued fœtid pus. From time to time there was swelling of the cheeks, with œdema, sometimes extending to the lower eyelid. Nevertheless, the patient's nose was free up till last August, when after a cold she was seized with pains and swelling of the cheek, with an abundant discharge from the left nasal fossa, very pronounced in the morning. There was subjective cacosmia. Examination of the mouth revealed a fistulous tract at the situation of the first molar, which on pressure yielded fœtid yellow pus. A probe introduced passed in half a centimetre, and gave evidence of carious bone. Investigation of the nose showed a polypoid state of the middle meatus, with pus in this region. Trans-illumination gave dulness in the left maxillary area and obscurity of the corresponding pupil. These signs were not altered after lavage. There was no evidence of disease in the frontal sinus. Owing to the intractability of the patient, it was not possible to utilise the *signe de capacité* (Mahu). The maxillary antrum was washed out *viâ* the middle meatus with a mixture of equal parts of oxygenated water and solution of boric acid, but the discharge from the nose and the alveolus was not in the least altered.

On August 2 the radical operation of Luc was performed. During this procedure a molar tooth was discovered in a bed of granulations with its crown protruding into the sinus, its roots partly embedded in the alveolus, partly in the antral floor. The tooth was carious at the junction of the neck with its fangs. As a result of the operation nasal discharge and subjective cacosmia completely disappeared.

The author remarks that the diagnosis of the cause for such an empyema before intervention is by no means easy. In this case a molar was absent on the left side of the upper jaw, whilst the number of teeth was normal on the right side, but an unerupted wisdom tooth could always be imagined, the more so as the patient was young; moreover, anomalies of position and evolution of teeth are not rare.

After discussing the mechanism of ectopic dentition, the writer observes that maxillary empyema the result of a tooth included in the sinus, and carious, is easily conceived, but in certain cases matters may be a little more complex. One knows that a migrated dental follicle is generally accompanied by secondary changes, such as cystic formation. In the present case it is possible that the empyema was the consequence of an intra-sinusal cyst which had suppurated.

CLAYTON FOX.

**George Mahu.**—*Frontal Sinusitis with Empyema of the Maxillary Sinus in a Woman aged Seventy-seven.* "Annales des Maladies de l'Oreille, du Larynx, du Nez, et du Pharynx," July, 1904.

On July 30 the author was called to an old lady suffering with a dull pain over the left frontal sinus, accompanied by an extremely abundant purulent discharge from the nose on the corresponding side. There was exquisite tenderness on pressure over the sinus and a white purulent discharge in the middle meatus. Patient complained of subjective cacosmia and toothache of the first and second upper molars, which were carious.

Chronic fronto-maxillary sinusitis was considered probable, an opinion which was strengthened by transillumination. Irrigation of the maxillary antrum *viâ* the middle meatus yielded a thick and extremely fœtid pus. All things tended to confirm the author's diagnosis; but in the course of the first and subsequent lavages he practised, as is his wont,

gauging of the maxillary sinus involved and found the amount of liquid aspirated to be 5 c.c., a quantity far too large to be compatible with a true chronic maxillary sinusitis. The diagnosis was for this reason modified to chronic frontal sinusitis with empyema of the maxillary antrum. The exactitude of this diagnosis was confirmed, for after three lavages followed by three gaugings, done at intervals of a week, the results were constant.

When the carious molars were extracted it was found that the intra-sinusal alveolar dome corresponding to one of them was destroyed. The opening into the antrum thus brought about was enlarged sufficiently to allow ocular examination of the antral walls with probe and electric light. The antral mucosa was found to be in a firm and healthy condition.

In order to be positive that the pus was not generated in the maxillary sinus, this cavity was at different times fully stuffed with iodoform gauze, which on withdrawal was not soiled, but when a short strand of gauze was introduced, it was found on removal to be soaked with pus. This afforded the author undeniable proof as to the existence of a chronic suppurative frontal sinusitis only. The antrum of Highmore had acted as a reservoir for the pus generated in the frontal sinus.

On October 3, as frontal pain persisted, pus increased, and patient was rapidly losing ground, a consultation as to the advisability of an operation was held. It was thought wise on account of patient's age to abstain from operative measures.

October 16.—Patient became comatose. Temperature  $39.6^{\circ}$  C.; pulse 140. A fatal issue was considered inevitable, but to the surprise of all the next day the old lady was smiling, recognising people, and talking perfectly, temperature  $37^{\circ}$  C. This respite was of but short duration, for the patient relapsed into coma and expired on the following day.

In this case the author emphasises two points—(1) the danger of delay in dealing with a case of confirmed chronic frontal sinusitis; (2) the importance of an exact diagnosis in conditions of polysinusitis. In regard to the first, the author strongly deprecates operative delay till complications manifest themselves, and considers early surgical intervention imperative. As to the second point, whilst acknowledging that the *signe de capacité* is not infallible, he regards it as of the greatest value in the diagnosis.

Clayton Fox.

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## LARYNX.

Botella (Madrid).—*The Treatment of Cancer of the Larynx and its Results.* "Boletín de Laringol., Otol., y. Rinol." Madrid, March—April, 1904, p. 277.

The author gives an interesting historical account of the disease and its treatment, especially in the laryngoscopic period, with statistics from the literature of 112 cases. Of these, 29 died as the result of the operation; there were 33 recurrences; 13 cures—with, however, a short period of observation; 16 definite cures; and 18 without subsequent history. Classified according to the method of observation, the results were as follows:



Operation.	Deaths from operation.	Recurrence.	Cures.
Endolaryngeal . . . .	5.7 per cent.	22.8 per cent.	28.5 per cent.
Laryngotomy . . . .	7.5 "	41.5 "	26.4 "
Pharyngotomy . . . .	8.2 "	42.5 "	14.9 "
Total extirpation . . .	34.0 "	23.3 "	9.0 "
Hemilaryngectomy . . .	25.0 "	26.7 "	14.0 "

The author discusses at considerable length the nature of cancer and the various modes of treatment founded on the view that it is parasitic. He views all these theories with considerable scepticism, and considers that timely surgical measures can alone be relied on with likelihood of success.

James Donelan.

**C. C. Rice** (New York).—*The Compensatory Action of Certain of the Laryngeal Muscles seen in Cases of Vocal Disability.* "Boston Med. and Surg. Journ.," September 8, 1904.

The author's results are summarised thus: (1) There exists throughout the entire muscular system of the body the intention and habit of one group to render assistance to any other group of muscles which may be temporarily or permanently inefficient; (2) such compensatory service is more readily appreciated in the larynx than elsewhere, because its technique may be observed with the laryngeal mirror; (3) that the weaker of the laryngeal muscles are very easily fatigued by too rapid training, or by over-training and that it is the habit of the stronger muscles immediately to offer their assistance; (4) that although this compensation is wonderful from a physiological point of view, it is unfortunately accomplished at the expense of any great success in singing.

Macleod Yearsley.

**Cotton, F. J.** (Boston).—*Laryngotomy and Removal of One Cord for Benign Tumour of Larynx.* "Boston Med. and Surg. Journ.," September 8, 1904.

The patient, aged sixty, showed dyspnoea fourteen days before admission. He was thought to be suffering from either specific or malignant disease. The right cord was immobile and thickened, without ulceration, in the posterior part. Iodide of potassium was given, but the dyspnoea increased, necessitating tracheotomy. Later a median laryngotomy was done, and, as the pathologists' immediate report of the growth was non-malignant, the author contented himself with removal of the soft tissues of the whole right inner side of the larynx. The tube was finally removed in eight days, and the recovery was uneventful.

Macleod Yearsley.

**Emil Mayer** (New York).—*Neurosis of the Larynx.* "Boston Med. and Surg. Journ.," September 8, 1904.

These neuroses are thus classified: (1) Motor disturbances of a hyperkinetic nature—the spasmodic affections of the larynx; (2) stammering; (3) status lymphaticus and sudden deaths; (4) motor paralysis. The author merely mentions the various sensory disturbances. Under the first group he describes at some length laryngismus stridulus, congenital

stridor, spasm of the glottis, chorea of the larynx, laryngeal nystagmus, laryngeal vertigo, and spastic dysphonia. Stammering he looks upon as acquired, requiring for its treatment careful, patient, painstaking *education*. In deaths from anæsthesia in adenoid operations he considers that the "status lymphaticus" is always present. *Macleod Yearsley.*

**D. Bryson Delevan** (New York).—*Present Methods for the Treatment of Malignant Disease of the Larynx.* "Boston Med. and Surg. Journ.," September 15, 1904.

Treatment is discussed under the heads of: (1) Internal medication; (2) antitoxins; (3) liquid air; (4) ligation of the carotids; (5) X rays; (6) ultra-violet rays; (7) radium; (8) surgical methods. He considers that direct operation presents the only *certainly* of success in the curative treatment. He especially commends the work of Butlin. He urges the early recognition of the cases and believes thyrotomy and partial extirpation for all cases seen early, with small and sharply limited lesion, and total extirpation for the more advanced cases. He also thinks a preliminary tracheotomy, some time previous to the main operation, advisable. Great stress is laid upon the danger of excising portions of malignant growths for microscopic examination on account of the irritation and immediate stimulation of the growth to rapid and extensive development. *Macleod Yearsley.*

**Blois, Amory de** (Boston).—*Sub-glottic Tubercular Lesions of the Larynx.* "Boston Med. and Surg. Journ.," September 22, 1904.

The author remarks that it has always been a question for argument whether tuberculosis is ever primary in the larynx, and any instances which throw even a feeble light on the subject seem worthy to be reported. He details two cases, the first a youth aged twenty-three. He had marked pulmonary physical signs, with tubercle bacilli in the sputum. The larynx was hyperæmic and the cords somewhat reddened, but with their edges sharp and smooth. Between the cords and in the region of the anterior commissure was a round, red swelling, about one inch below the glottis. Two days later this broke down, forming a subglottic ulcer. It slowly healed under applications of lactic acid, with "creosotal" internally, and did not recur, although the pulmonary disease rapidly carried off the patient.

The second case was a youth aged twenty-four. The laryngeal appearances were remarkably similar to those of the first case. The vocal cords and arytenoids were somewhat swollen and slightly reddened, and, exactly in the same position as in the other patient, there was a similar open ulcer. There were physical signs at the right pulmonary apex. This case grew rapidly worse, the ulceration creeping up and involving the edges of the cords. He developed aphonia, difficulty of deglutition, and quickly died. *Macleod Yearsley.*

## EAR.

**Lucchesi, C.** (Naples).—*On a Rare Anomaly in the Anatomical Direction of the Lateral Sinus with Absence of the Mastoid Antrum in a Case of Subacute Purulent Otitis Media from Influenza with Mastoid Complications.* "Bolletino delle Malatt. Orec., Gola, e Naso.," Florence, May, 1904.

The right lateral sinus extended to Henle's spine, occupying the field

of operation on the antrum. The descending portion after bending was parallel to the posterior wall of the auditory meatus, and only 2 mm. distant; thence it descended to the apex, maintaining a superficial course throughout. The antrum was absent and was represented by a few cells above and behind the meatus. The anomaly was discovered in the course of an operation for the relief of symptoms of mastoid abscess. Wilde's incision was made, and above and behind the meatus and somewhat above the temporal line a small loss of substance with irregular edges was found. A sound penetrated a considerable distance, passing through necrosed bone situated near the tympanic ring. On attempting to open the antrum the lateral sinus was twice laid bare, without wounding it, 2 mm. from the cortex. The operation was completed by curetting the necrosed bone through the fistula and through the meatus. The patient made a rapid recovery.

James Donelan.

## REVIEW.

*Essay on the Irregularities of the Teeth, with special reference to a Theory of Causation and the Principles of Prevention and Treatment.* By J. SIM WALLACE, D.Sc., M.D., L.D.S. London: The Dental Manufacturing Co., Ltd. 1904.

This volume contains a collection of essays which appeared originally in the *Journal of the British Dental Association*, 1900, and the *Dental Record*, 1901-3. The object of the author is to prove that the smallness of jaw supposed to be characteristic of civilised man is a condition individually acquired, dependent, not upon "civilisation" *per se*, upon natural or sexual selection, but upon elimination from the diet of the coarser and more fibrous materials necessitating considerable masticatory effort; the result being that, owing to diminution of nutrition due to muscular strain, the jaws of civilised man fail to reach their normal size, this failure bringing in its train all those forms of irregularity of the teeth which are due to overcrowding.

Great stress is laid upon a hypothesized diminution in the size of the tongue, from the cause mentioned above, as instrumental in bringing about corresponding diminution of the dental arches.

Dr. Wallace's arguments in favour of his views are well conceived and ably set forth, though perhaps brought forward with rather too much of an air of originality; for the action of the tongue and lips in modelling the dental arches has long been known and utilised by dental surgeons, while the association of fine arches of sound teeth with a diet consisting principally of meat and fibrous substances has been noted by many previously. A chapter on prevention of irregularities calls for commendation, though those on treatment are hardly full enough. On page 125 we are told that in certain forms of irregularity "it is absolutely necessary to diminish the size of the tongue," and are left wondering how this is to be accomplished by any means short of major surgery. Here and there the author rather ostentatiously attacks theories and methods of treatment now condemned as obsolete by the majority of practitioners. The book as a whole gives food for thought, and may be recommended to medical men interested in the subject, as well as to dental surgeons and advanced students.

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## EXUDATIVE ERYTHEMA OF THE MOUTH AND THROAT.

BY T. K. HAMILTON, M.D.DUB., F.R.C.S.I.,

Late Hon. Surgeon to the Throat Department, Adelaide Hospital; Hon. Consulting Laryngologist to the Kalyra Sanatorium, South Australia.

THIS condition of the mouth and throat is, I believe, an extremely rare one; so rare, that in my case-books—which contain upwards of 16,000 cases, drawn from a special practice, both hospital and private, of fifteen years—records of only four cases appear, and in the text-books the only direct mention of the condition that I can find is made by Lennox Browne,<sup>1</sup> Head,<sup>2</sup> and McBride.<sup>3</sup> My first case was seen in the year 1891, and within the past eighteen months I have seen the other three. Case No. 1 was a typical one of the affection, and has been recorded by me in the "Proceedings of the South Australian Branch of the British Medical Association."<sup>4</sup> I was at first at a loss to know what the condition was, not having previously seen any similar development in the throat. But on looking up the then current literature I happened to come across an article—the only one I had hitherto seen—written by Dr. Schötz and translated from the *Berliner Klin. Wochenschrift*, July, 1884, in which he described what he calls an unique case of sore throat under the title "Erythema

<sup>1</sup> "The Throat and Nose and their Diseases," ed. iv, p. 191.

<sup>2</sup> "Year Book of Nose, Throat, and Ear," 1901, p. 115.

<sup>3</sup> "Diseases of Throat, Nose, and Ear," ed. ii, p. 30.

<sup>4</sup> 1891, p. 142.



Exudativum in den Halsorganen." This case seemed to correspond so entirely with mine that I felt satisfied that the two cases were identical. Since then I have only seen three other cases, all of them presenting the same clinical aspects, and with certain modifications clearly coming under the same classification group. It has so happened—whether as a coincidence or not, I cannot say—that in all four cases the patients were females, and their ages ranged from fifty-five to sixty years, *i.e.* individuals who had passed the menopause; two out of the four were unmarried females; and in all of them the rheumatic or rheumatic gout diathesis played a prominent part. The symptoms complained of were: irritating cough, aggravated by any attempt to use the voice, some dysphagia, dryness of the mouth and throat—a modified form of condition known as xerostomia—and a general feeling of malaise. On examination of the parts affected the following conditions were discovered: the free margin of the epiglottis and the adjacent spots were covered with small irritable-looking spots of ulceration with slightly thickened edges, but no induration, and somewhat excavated centres. The epiglottis seemed in all the cases to be the point of selection at first, and from it the conditions spread to the surrounding parts. The spots of exudation invariably preserved their isolated and separate appearance throughout; none of them, even after several months, ran into each other to form larger patches. They next seemed to spread from the epiglottis to the ary-epiglottic folds, and on from that to the velum, soft palate, tonsillar and buccal regions, and the gums and lips. The invasion of these regions marked the limitation of the exudation in the mouth and throat, there being no tendency in any of the cases to invade the larynx below the epiglottis or the trachea. In one case spots appeared on the vagina and other mucous surfaces such as the mucous part of the umbilicus, but they did not remain so long as the original spots, nor did they leave so much mark behind them when healed, possibly because they were more superficial, having been more or less modified by treatment.

As to the diagnosis; this may be difficult for one who has not had the opportunity of seeing a case before, but the clinical picture, once seen, cannot fail to be readily recognised again. The condition which it is most likely to be confounded with is "herpes" of the pharynx. Pemphigus and urticaria multiformis also bear some features of resemblance. But the points of difference between the exudative erythema and these other affections are sufficiently well marked to enable the careful observer readily to differentiate the

one from the other. These latter eruptions ought to be fairly easily distinguished from the small white ulcers of erythema which McBride has described as "miniature saucer" in shape, especially when the exudation or eruption stages are fairly well advanced. In the first place herpes and pemphigus assume a much more acute form, run a more rapid course, and are accompanied usually by much more constitutional disturbance and more pronounced local symptoms, such as pain, tenesmus, and sensation of choking. The spots in herpes and pemphigus are vesicular from the first, with a tendency, in severe cases, to become bullous, sometimes to run into each other, and to cause œdematous swelling of the surrounding parts. This latter (the œdema) may give rise to dyspnoea when the glottis is involved. In those cases of herpes, pemphigus, and urticaria which I have seen or read of the eruption usually appeared first on the soft palate and on the uvula, with marked œdema on the parts affected. This œdema, especially that of the uvula, often causes the greatest distress to the patient, and evidences are sometimes not wanting of a general sepsis, symptoms of which are never found accompanying an exudation erythema. Of these septic symptoms the appearance of lacunar tonsillitis on the third day and a crop of herpes on the upper lip may be mentioned. In Case No 4 the question of diagnosis had, before she came under my care, assumed a very important and rather distressing phase, at any rate for the patient. She had been told that she was suffering from tubercular laryngitis, and she was naturally very anxious about her condition, the more so because she was led to understand that she could no longer continue her work as a music teacher. So she had to face the prospect of genteel starvation under any circumstances, and in addition a possible, if not probable, fatal termination of her malady. Examination of the sputum and of the chest failed to find any evidence whatever of tubercular disease, and it is extremely gratifying to relate that after three or four weeks' treatment all these gloomy prognostications had been sufficiently falsified to enable her to resume her teaching. The relief to the patient's mind which resulted from this change for the better I leave my readers to imagine, and the clinical aspect of the case at this stage can best be described by quoting the words of her own medical attendant, who wrote to me saying: "Miss S—'s case is a great triumph."

Next as regards treatment. Schötz found that the only remedy at all efficacious in the condition under consideration was arsenic: Fowler's solution in doses of three minims is the specific, and of local applications an ethereal solution of nitrate of silver to the

spots is the most comforting and aids most in getting the ulcerated spots to heal. This treatment all my patients have been carrying out faithfully and with most satisfactory results. My first patient has been taking arsenic now for about thirteen years, with periodic short interruptions, and not only are exudations kept in check by the treatment, but the improvement in the patient's general health is fairly well maintained. She gained in weight and strength as soon as she got well under the influence of the arsenic. She has never been able to take more than four minims of Fowler's solution, as larger doses cause a feeling of fulness in the head, gastric irritation, and anasarca of the legs and feet. So she takes the solution for one month at a time, beginning with three minims and increasing the doses to four minims, while at the end of each month she leaves the medicine off for a week and commences again.

I cannot conclude without referring to a point of great interest, viz. the co-existence in two of these cases of xerophthalmia with the erythema of the mouth and throat. This complication I at first thought might be only a coincidence; but when I found the same conditions present in a second case, I felt constrained to conclude that there must be some definite relationship between them, and that a very special interest attached to their co-existence in the same subject. When thinking the matter over I was enabled to make a clinical observation which clearly pointed to an origin pathologically common to both. The essential shrinkage of the conjunctiva in both eyes of one of the patients had progressed so much that I determined to do a transplantation of mucous membrane from the lower lip to relieve the symblepharon-like contraction of the lower fornix, and I proceeded to take a flap from the lower lip for that purpose. On applying the clamp, however, to the lip and commencing to cut the necessary flap, I found that the mucous membrane was so soft and degenerated that it was quite impossible to get a flap which would be of any use from this part, as its epithelial layer was so diseased that it would not bear transplantation. This points to a common origin for both conditions, viz., a general disturbance of nutrition throughout the whole system, affecting principally the mucous membrane, and serves to explain the co-existence of an epithelial degeneration throughout the body along with mouth and throat erythema.

Adopting Cohn's classification of xerosis, the diseased condition in each of these two cases would be clinically designated "Xerosis epithelialis" as opposed to "Xerosis parenchymatosa,"



and involves, as I have just said, and as observation demonstrates, a lowering of the vitality throughout the whole system. Schiele, in discussing the pathology of xerophthemia, emphasises the importance of this etiological factor in all such cases,<sup>1</sup> and this further explains the efficacy of a nerve tonic such as arsenic as the best curative agent for both. Unfortunately, the corneæ in both eyes had become seriously affected before any attempt was made to check the corneal degeneration, otherwise the beneficial effect of the exhibition of arsenic might have been more marked. The explanation offered for my not having commenced the arsenic treatment sooner is this: both patients came to get relief for the eye troubles, and it was not until they had been some weeks under treatment that I came to know that the throat and mouth were also involved. Indeed, I feel pretty certain that the eye trouble was the primary and the mouth and throat a secondary condition. Be that as it may, I had not recognised the one until the other was fairly well advanced. To assist in further establishing the connection between conditions such as the two under consideration, and to make the evidence as complete as possible, a bacteriological examination was made in one of these cases, but unfortunately, with negative results. Having obtained such uniformly good results from the administration of arsenic in the erythematous condition, I put one of the cases, which I had been treating for the xerosis of the conjunctiva, upon arsenic as soon as I came to know that she had erythema as well, and with the expectation of good resulting to both conditions. The result was not altogether disappointing, as the patient's eyes were certainly made more comfortable by the treatment. The corneæ, it is true, did not show any visible signs of improvement and perhaps such a change could scarcely be expected seeing that the xerotic changes were at the time very extensive. When this latter is taken into consideration, and also when we consider that we have to deal with a structure like the cornea, with its scanty nerve supply, we can hardly wonder at the results of this or any other treatment being much less pronounced than those obtained from treating the mucous surfaces of the mouth and throat. The arsenic treatment, nevertheless, deserves a trial in xerophthemia, especially when the disease is in the earlier stages, as I think that there are some grounds for hoping that it may possess prophylactic and remedial properties in excess of what has hitherto been expected or has, up to the present, been demonstrated.

In conclusion, I may be allowed to express the hope that

<sup>1</sup> *Wochenschr. für Therapie und Hygiene des Auges*, 1904, p. 32.



this record of my experience in these cases may help others in similar cases and prevent their falling into the same mistake, if mistake it was, and from leaving cases of the kind untreated by the only known specific—arsenic—until the patient's general condition of reduced vitality and the local condition of advanced corneal degeneration be too far advanced for the arsenic treatment to bring about any substantial improvement.

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### THE DISTURBANCES OF VISION AND DEVELOPMENT OF BLINDNESS OF NASAL ORIGIN INDUCED BY DISEASE OF THE POSTERIOR ACCESSORY SINUSES.<sup>1</sup>

BY PROFESSOR DR. A. ONODI, Buda-Pesth.

My investigations concerning the connection between the optic nerves and the sphenoid cavities and the posterior ethmoid cells lead me to take the opportunity to place this question before the British Medical Association, in the hope of hastening the solution in the future of questions still open to the common research and observation of rhinologists and ophthalmologists. With the object of learning the opinions and experiences of various eminent ophthalmologists I submitted to them the following questions:

1. Have you observed loss of sight or optic neuritis due to canicular disease of the optic nerve produced by diseases of the sphenoid and ethmoid cavities? Was the causal connection traceable and nasal treatment effective?

2. Have you noticed loss of sight or optic neuritis caused by disease of the above-mentioned cavities and in causal connection, confirmed by necropsy?

3. In one-sided neuritis, is optic atrophy characteristic of a causal connection with diseases of these cavities? Have you observations of this?

4. Can blindness of both eyes co-exist with long-standing empyema of the sphenoid without causal connection? Have you observed this?

I will mention shortly the most important observations in the valuable and interesting replies.

Herr Geheimrat Professor Th. Leber says:

The absence of objective observations, with exact *post-mortem* reports and histological examinations affording us information on the nature of this lesion and the

<sup>1</sup> Communicated to the Section of Laryngology and Otology at the Annual Meeting of the British Medical Association held at Oxford, July 26—29, 1904.

mechanism of its origin, regarding which different possibilities are conceivable, is to be deplored. Although I have turned my attention for many years to the question of the connection between the diseases of the posterior sinuses of the nose and those of the organs of sight, I have been able to note very little worthy of record with regard to the sphenoidal sinuses and the posterior ethmoid cells. I have reported one case of a tumour in the posterior and upper part of the nose where retention of pus in the sphenoidal sinus occurred. Exophthalmos and recurrent inflammation of the orbital tissues were observed, and later blindness came on suddenly, without important ophthalmoscopic changes, and afterwards optic atrophy developed; death was caused by suppurative meningitis and thrombophlebitis of the sinuses. The *post-mortem* examination, at which I could not be present, afforded no fixed essential fact as to the original cause of blindness; unfortunately, exact histological investigations could not be made. I do not doubt, however, that in this, as in many other cases, a connection existed between the primary lesion and the blindness. It must not, however, be assumed that the connection is such that it must always come into play in apparently similar circumstances. Stress may properly be laid on the fact that in severe disease of the sphenoidal sinus there is no necessary defect in the sight. Lately I had an opportunity of seeing such a case. It was an instance of unilateral exophthalmos which resulted from a tumour apparently of the ethmoid and sphenoid bones. The exophthalmos was still slight, and visual acuity and ophthalmoscopic appearances normal. An operation performed in the surgical clinic here disclosed a very large tumour formation, which involved the sinus frontalis, the upper and middle nasal passages, and extended to the antrum of Highmore, and filled the sphenoid cavity with a large projection. Recovery took place satisfactorily without damage to the eyes or vision, but we must await further results. I do not remember any other cases of disease of the optic nerves than those mentioned; at any rate, I believe that they are of very exceptional occurrence in ophthalmic practice.

Herr Geheimrat Professor Schmidt-Rimpler says:

I have never seen a case of disease of the optic nerve in sphenoid or ethmoid bone affections in which there was not penetrating disease of the orbital wall and of the adipose tissue of the orbit, displacement of the eye and exophthalmos; disease of the optic nerve is, then, the result of affection of the adipose tissue. On the other hand, I have seen a case in which, *post mortem*, the whole of the sphenoid bone was infiltrated with sarcoma, which projected into the cranium, and in spite of this the optic nerve was intact on both sides:  $V = 1$ ; the nerves (abducens, oculomotor, and trochlear) were, on the contrary, partially affected. My experiences afford me no proof that empyema of the sphenoid cavities can of itself cause an affection of the optic nerves.

Herr Geheimrat Professor H. Sattler says:

Since, on the whole, very few cases of diseases of the sinuses come here from the eye clinic, I can give very few from my own experience, in spite of the large amount of clinical material we have. In answer to question 3, unilateral optic neuritis and optic atrophy are in no way characteristic of disease of the sphenoid and ethmoid cavities. It might, however, arise from inflammation, hæmorrhage, tumour at the cerebral end of the optic canal, or from toxic causes. In answer to question 4, in blindness of both eyes and simultaneous empyema or caries of the sphenoid cavities or antrum of Highmore, a causal connection is not to be rejected, so long as no other reason for blindness is discoverable. I can myself report no *post-mortem* examination of an affection of the optic nerves in which the above mentioned cavities were diseased.

Herr Professor Axenfeld says :

It is my opinion that diseases of the optic nerves (neuritis, pressure atrophy) are, if we except actual tumours and perforating cases, much rarer than we might expect in diseases of the sphenoid. As to empyema, I can only remember one double-sided case in which the connection of retrobulbar neuritis with sphenoid empyema was possible. I have seen no other definite cases, although I have worked for years with Koerner and now with Killian, and made rhinological investigations of all serious disturbances of sight, and especially those of retrobulbar character. The expectation that the so-called acute retrobulbar neuritis might be frequently due to disease of the sphenoid was not fulfilled. Two tumours of the mucous membrane of the sphenoid which I saw occasioned early unilateral visual disturbance; I have the preparation of one of them in which the disease of the optic nerve remained on one side. The other led by interference with the chiasma to blindness. A third case came under my treatment simultaneously with double amaurosis. In such cases there is nothing characteristic about the visual disturbance. It was surprising that the intensity of the visual disturbance was at first out of proportion to the ophthalmoscopic appearances, as is found in so-called retrobulbar disease. If I leave out of consideration cases in which diseases of the ethmoid bone have encroached on the orbit, I cannot remember having observed a real case of disease of the optic nerve from this cause. Naturally I will not from these data question what has been written about optic neuritis in sphenoid empyema; but that it is relatively rare I must maintain. It is, of course, possible that, occasionally, disease of the sphenoid bone may accidentally occur at the same time as affection of the optic nerve, but this may be exceptional.

Herr Professor Hirschberg says :

I can, unfortunately, not answer with confidence the questions put to me. With regard to *post-mortem* examinations I have nothing at all to say.

Herren Snger and Wildbrand say :

Unfortunately, we have made no observations which would show causal connection between optic neuritis and disease of the sphenoid and ethmoid cavities.

In my paper on the relationship of the optic nerve to the sphenoid cavities, and especially to the posterior ethmoid,<sup>1</sup> I have brought into prominence the fact that hitherto, owing to the almost mechanical acceptance of a canalicular disease of the optic nerve, the sphenoid cavities and their diseases alone were thought of. My investigations were unknown to Herr Professor Eversbuch before the publication of his monograph. I will summarise my conclusions concerning the connection between the sulcus opticus, the foramen opticum, the canalis opticus and the chiasma, and the nervus opticus; I have the honour to demonstrate photographs—natural size—of my preparations. In six cases in which the posterior ethmoid cells on both sides extended into the small sphenoid wings, there was an intimate relation between them and the optic

<sup>1</sup> "Das Verhltnis des Nervus opticus zu der Keilbeinhhle und insbesondere zu der hintersten Siebbeinzelle—Das Verhltnis der hintersten Siebbeinzelle zu den Nervi optici," *Archiv. f. Laryngologie*, Bd. 14, 15.



nerve, in all with the median wall of the optic canal, and in two with the lower wall of the sulcus opticus. In three hemicraniums the posterior ethmoid cells alone formed the walls of the sulcus opticus, optic canal, and foramen opticum. In five cases the posterior ethmoid cells formed the median wall of the optic canal on the same side; in one case the upper wall of the optic canal was in relation to the posterior ethmoid cells on the same side. In one case the right posterior ethmoid cells, 17 mm. high, 22 mm. long, and 34 mm. broad, were in close contact with the chiasma and both optic nerves, so that the whole sulcus opticus and both posterior optic canals, as well as the superior wall of the posterior ethmoid cells, were exceedingly thin. In six cases the sphenoid cavities extended on to the sphenoid wings, and formed the wall of the optic canal.

My investigations showed, therefore, that the posterior ethmoid cells frequently extended into the sphenoid wings, and that in these cases the sphenoid cavities have nothing to do with the region of the canal and optic nerve. The plates, which are true to nature, throw instructive light on the relationships.

Fig. 1 shows beautifully on a sagittal section the position and connection of the posterior ethmoid cells to the foramen opticum (F O), nervus opticus, sulcus opticus (S O), and to the anterior part of the sella turcica (S T); it can be plainly seen that the sometimes large sphenoid cavity (S S) has no relation to the foramen opticum, the canal and optic nerve. The posterior ethmoid cell (C P E), 30 mm. long in the middle line and 18 mm. broad, extending under the sulcus opticus (S O), and the foramen opticum (F O) in the sphenoid wings, forms the whole wall of the sulcus opticus, and also the median, lower, and lateral walls of the optic canal.

Fig. 2 illustrates very clearly on both sides the relation of the posterior ethmoid cells (C P E) with the optic nerve. The posterior ethmoid cells extend to the foramen opticum, and form on both sides the median and lower walls of the canalis opticus. Under the lower wall of the posterior ethmoid cells, close to the middle line, may be seen the openings (O S) of the sphenoid cells and the diminishing small anterior wall. Neither sphenoid cavities have any relation to the walls of the canalis opticus.

Fig. 3 is very interesting: it shows the relation of the optic nerve (N O) and the optic canal (C O) on the one side of the sphenoid cavity (S S D), and on the other side to the posterior ethmoid cavity (C E P). This cavity is 28 mm. long, 30 mm. broad, 26 mm. high, and the optic canal containing the optic nerve lies for 12 mm. in the posterior ethmoid cavity. The median, the



upper, and the lower walls of the optic canal are formed on the left by the posterior ethmoid cavity, and on the right by the sphenoid cavity.

Fig. 4 shows a sagittal section, in which the relation of the most posterior ethmoid cell (C E P\*) to the optic canal and optic nerve (N O) may be well seen. This posterior ethmoid cell is 34 mm. long, 16 mm. high, and extends behind the optic canal for 6 mm.

Fig 5 shows on both sides the relationship of the optic nerves (N O) to the sphenoid cavities (S S). On both sides these cavities extend into the wings of the sphenoid and form the median wall of the optic canal.

Fig. 6 shows a frontal section in which may well be seen the connection of the left optic nerve (N O) to the sphenoid (S S), to the posterior ethmoid (C E P), and the frontal cavities (S F), which extend to the foramen opticum on both sides. The lateral wall of the sphenoid cavity encloses in the middle line the optic nerve.

Figs. 7 and 8 show the corresponding sagittal section which was made in the middle line of the cranium. The right posterior ethmoid cell (C E P) is situated above both the sphenoid cavities; its upper wall forms on both sides the lower wall of the optic canal. The right posterior ethmoid cell (C E P) is 17 mm. high, 22 mm. long, 38 mm. broad; it lies in contact with the chiasma and both optic nerves (N O) so that the whole sulcus opticus and the two optic canals, as well as the upper wall of the right posterior ethmoid cell, are formed by a thin common wall.

The following anatomical relations may exist:

1. The optic canal may be formed on both sides by the sphenoid cavities.
2. The optic canal may be connected on both sides with the most posterior ethmoid cells only.
3. The optic canal may be formed on one side by the sphenoid cavity, on the other side by the most posterior ethmoid cell.
4. The optic canal only on one side may be related either with the sphenoid cavity or with the posterior ethmoid cell.
5. The optic canal can be related on one side both with the sphenoid cavity and with the posterior ethmoid cavity.
6. The optic canal can be related neither with the sphenoid nor with the posterior ethmoid cavity.

It thus appears that the optic canal is in close connection just as frequently with the sphenoid cavity as with the ethmoid cell. My investigations show further that in all cases in which the optic canal is connected with the posterior ethmoid cell the septum is always as thin as the thinnest paper. In three cases I found

PLATE I.

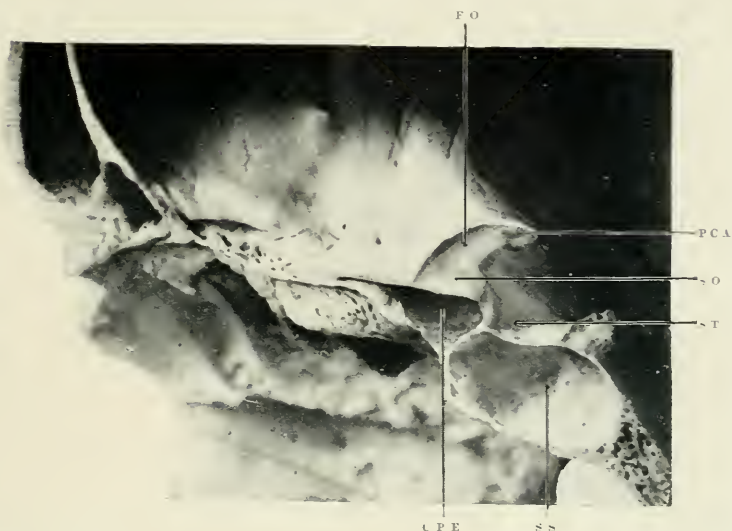


FIG. 1.—Natural size; F O, foramen opticum; P C A, processus clinoides anticus; s T, sella turcica; s o, sulcus opticus; s s, sinus sphenoidalis; C P E, posterior ethmoid cell.



FIG. 2.—Natural size; N O, nervus opticus; C E P\*, most posterior ethmoid cell; C E P, posterior ethmoid cell; O S, ostium sphenoidale; C S, superior turbinal body; M N S, superior meatus; C M, middle turbinal body; M N M, middle meatus; S M, sinus maxillaris; C I, inferior turbinal body; M N I, lower meatus; P, hard palate; S, nasal septum.



differences worthy of mention in the thickness of the wall of the sphenoid cavity, in the roof of the foramen opticum; in the first case, on the left it is 2 mm. thick, on the right as thin as paper; in the second case it is 1 mm. thick on the left and 5 mm. on the right; in the third case it is 4 mm. thick on the left, and 3 mm. on the right. Berger and Tyrmann mention two cases; in one the wall of the sphenoid cavity was 4 to 6 mm. thick, in the other case it was thin as paper on one side and on the other side 7 mm. thick. In 300 cases I only once observed two punctiform defects in the wall of the canalis opticus, Gallmaerts in 200 cases twice, Holmes in 50 cases twice. With regard to the physiological origin of these apertures, we noticed in several craniums vascular openings (gaps), sometimes symmetrical on both sides, immediately under the lateral root of the wing of the sphenoid. In certain cases vascular grooves form the middle of the fissura orbitalis, and end in smaller, larger, or long apertures. Zuckermandl noticed on the lateral wall small cavities or apertures which connected the sphenoid cavities with the middle cranium cavity. Spee in one case noticed a defect in the sulcus caroticus.

Berger and Tyrmann turned their attention to the connection between diseases of the sphenoid cavity and blindness. They collected 23 cases in the literature up to 1886, of which 6 were caries, the rest new formations and recurrences: in 2 of the 6 cases other tumours were present. Since that date very little has been written in the text-books of diseases of the eyes and nose as to diseases of the sphenoid cavity producing by its close relation with the optic nerve blindness and visual defects. Even the most recent monograph by Eversbusch does not by any means exhaust this interesting and important subject. To ophthalmologists many causes are known which produce optic neuritis or atrophy and which have nothing to do with the accessory sinuses. Similarly intra-cranial changes are known to us which also are far removed from the adjoining cavities. Berger and Tyrmann notice in connection with their statistics, already mentioned, of nasal blindness that "no defect in vision has been shown in a number of cases during the whole course of the affection of the sphenoid cavities in caries or in the growth of a tumour up to the death of the patient." Mendel examined Professor Hirschberg's material, and found that "almost half the cases of unilateral optic inflammation are traceable to a nasal source in a wider sense." He remarks that unilateral choked disk is mostly due to an affection of the orbit, bilateral mostly to an intra-cranial cause. Similarly, Lapersonne insists on the characteristic of unilateral disease:



Optic neuritis is rarely seen in inflammation of the frontal sinus, more often in inflammation of the maxillary or ethmoid, but it is produced, if at all, by inflammation of the sphenoidal sinus. A chief characteristic of neuritis due solely to sinus inflammation is that it is unilateral. Although strictly speaking both nerves may be affected in the optic canal by inflammation of both sphenoidal sinuses, a double cedematous neuritis ought rather to make one think of an intracranial process.

If we compare, in the first place, the *post-mortem* records, it is seen that these are generally cases of tumour or injury in the region of the canal and optic nerve. The mechanical lesion is clear in all those cases in which tumours of the naso-pharynx, of the sphenoid cavity, of the sphenoid bone, of the ethmoid cell, or of the ethmoid bone extend to the neighbourhood of the optic nerve and affect the optic nerve, or through pressure cause functional disturbances and changes in circulation. Similarly the mechanism of the lesion is clear in those cases in which injury, fractures, and fissures damage the optic nerves in the region of the sphenoid bone. At the same time, *post-mortem* examinations show that tumours in the region of the body of the sphenoid leave the optic nerves intact. In Reinhardt's case of cancer of the upper jaw the bones of the base of the cranium were at the same time greatly thinned by caries, the sella turcica being most affected, and the body of the sphenoid bone was so softened that it could be cut out with a knife. According to the *post-mortem* report the optic and olfactory nerves were normal. In Bering's and Wicherkiewicz's case the sarcoma, according to Ponfick, had originated from the body of the sphenoid, and the optic nerve, though involved in the tumour, was normal. The above-mentioned observation of Schmidt-Rimpler's and one of my own show at any rate that in cases of sarcoma of the sphenoid both optic nerves may remain intact.

Those *post-mortem* conditions must be mentioned on the strength of which Virchow, Manz, and Ponfick have attributed blindness and exophthalmos to a disturbance in the development of the basis cranii in the earliest stage of existence, to a premature ossification of the basis cranii, to hyperostosis, and to strangulation of the optic nerve in consequence of the irregular contraction of the foramen opticum. In Ponfick's case the purulent meningitis was caused by a purulent catarrh of the nose, for the nasal cavity was connected with the anterior cranial cavity by an abnormally wide opening.

We add the following cases of *post-mortem* discoveries regarding suppuration. In Duplay's case of right-sided exophthalmos and absolute blindness there was meningitis of the base, especially of the sella turcica, purulent phlebitis of most of the sinuses, several

## PLATE II.



FIG. 3.—Natural size: *N O*, nervus opticus: *C O*, canalis opticus: *C E P*, most posterior ethmoid cell; *S S D*, right sphenoid cavity: *S S S*, left sphenoid cavity: *M N S*, superior meatus; *C S*, superior turbinal body; *C M*, middle turbinal body; *M N M*, middle meatus; *S M*, antrum of Highmore; *M N I*, inferior meatus; *C I*, inferior turbinal body; *s*, nasal septum; *P*, hard palate.

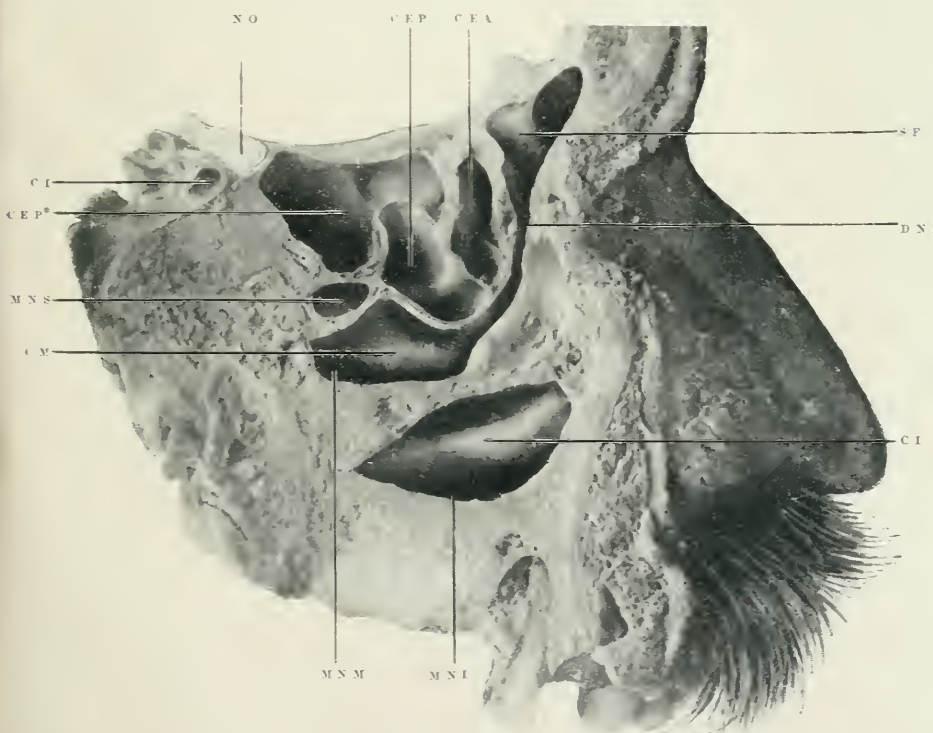


FIG. 4.—Natural size: *N O*, nervus opticus: *C I*, carotis interna: *C E A*\*, most posterior ethmoid cell: *C E P*, posterior ethmoid cell: *C E A*, anterior ethmoid cell: *S F*, sinus frontalis; *D N F*, ductus naso-frontalis; *M N S*, superior meatus; *C M*, middle turbinal body; *M N M*, middle meatus; *M N I*, inferior meatus: *C I*, inferior turbinal body.



purulent collections in the orbital connective tissue, and pus in the sphenoid cavities and in the right ethmoid cells. In Horner's case of blindness and right exophthalmos *post-mortem* examination showed caries of the base of the sphenoid and adjoining parts. In Panas' case blindness, exophthalmos, and orbital abscess were due to otitis of the sphenoid bone. In Rouge's case of divergent strabismus and loss of sight in the left eye, there was found *post-mortem* suppurating periostitis and empyema of the left sphenoid cavity. In Russell's case of decrease of visual acuity, ptosis of the upper lid and immobility of the left eye, there were found *post-mortem* intradural abscess of the middle cranial cavity, empyema of the posterior ethmoid cavities, thrombosis of the cavernous and petrosal sinuses and of the left vena ophthalmica.

In Raymond's case of blindness and double exophthalmos there was found *post-mortem* basal meningitis, purulent exudation compressing the chiasma, thrombosis of the sinus cavernosus and venæ ophthalmicæ, caries, and perforation of the sphenoid. In Ortmann's case there was extradural abscess of the sella turcica, thrombosis of both cavernous sinuses, periostitis, and empyema of the sphenoid cavities. In Grünwald's case basal meningitis and suppuration of the sphenoid and antrum of Highmore were found. In Demarquay's case of marked depression and immobility of the eye, with insensibility to light on the right, the *post-mortem* conditions were that the sinus cavernosus was bathed in pus, and the sphenoid, ethmoid, and Highmore cavities were filled with pus. In Vossius's case empyema of the sphenoid cavity and of the left ethmoid labyrinth, with caries of the sphenoid, thrombo-phlebitis of the superior vena ophthalmica, of the left vena angularis and facialis anterior, and suppurative pachy-meningitis and leptomeningitis were present.

We must now refer to certain cases in which suppuration and destruction of the walls of the sphenoid cavity were described without disturbance of vision. Berger and Tyrmann mention a slow exfoliation of detached parts of the sphenoid bone, without any disturbance of the sight, ending in meningitis. Baratoux describes a case in which a large part of the sphenoid was extruded through the nose without any consequent interference with the sight. Hajek saw in several cases considerable syphilitic affection of the anterior wall of the sphenoid cavity without any special symptoms. Flatau records twenty-six cases of empyema and caries of the sphenoid cavity, but mentions no interference with sight. Foucher describes the case of a girl, aged fifteen, who had necrosis of the turbinated bodies and sphenoid cavity. She underwent anti-



syphilitic treatment and a bony sequestrum was expelled; the girl died. Defective vision was not noticed. Hinkel treated twenty cases of sphenoidal empyema without being able to observe any changes in the field of vision or disease of the eyes. Schmiegelow has reported several cases of sphenoidal affections, without change in the functions of the optic nerves. In cases of sphenoidal empyema which I have seen and treated there was never the slightest interference with the sight.

We turn now to those cases in which interference with sight had been noticed in association with disease of the adjoining cavities. Coppez and Lor have recorded in a girl, aged twenty-two, a one-sided optic neuritis which healed although the patient refused to allow any surgical interference with the chronic sphenoidal empyema from which she suffered. In Post's case of necrosis of the small wing of the sphenoid with exophthalmos and amaurosis after the extraction of the necrotic bone, the eye resumed its normal position but the amaurosis remained. Lapersonne observed three cases in which unilateral neuritis with choked disc existed in association with sphenoidal empyema. The treatment of the empyema had no influence on the unfavourable course of the optic lesion. Snellen observed two cases of optic atrophy caused by empyema of the sphenoid bone. In Coppez's case of slight extrusion of the eyeball and disturbance of vision, the left optic nerve was coated, and there was suppuration of the sphenoid cavity; a sequestrum 1 cm. long was expelled; the patient recovered. In Lor's case of unilateral neuritis with sudden blindness, cure was brought about by treatment of chronic sphenoidal empyema. Mendel describes a case of unilateral retrobulbar neuritis, where striking improvement took place after opening the suppurating outer and middle ethmoidal cells. In the Bergmeister-Hajek case of unilateral congestive neuritis, with empyema of the ethmoidal labyrinth, recovery took place. In Fleiss's case of retrobulbar neuritis and right-sided sphenoid cavity empyema, treatment was successful. Similarly, in Hoffmann's case, treatment of empyema of the sphenoid cavity and ethmoid cells was very successful. In Halstead's case of empyema of the right antrum, ethmoid and sphenoid cavities, with amaurosis of the left eye, treatment was effective, as also in Sargent F. Snow's case. A case of bilateral affection of the optic nerves in empyema of the ethmoidal cells is mentioned by Mendel, without a reference, as being recorded in English literature. Two cases of double-sided blindness which were brought before the Hungarian Society of Physicians were connected with sphenoidal empyema by Pollacsek

PLATE III.

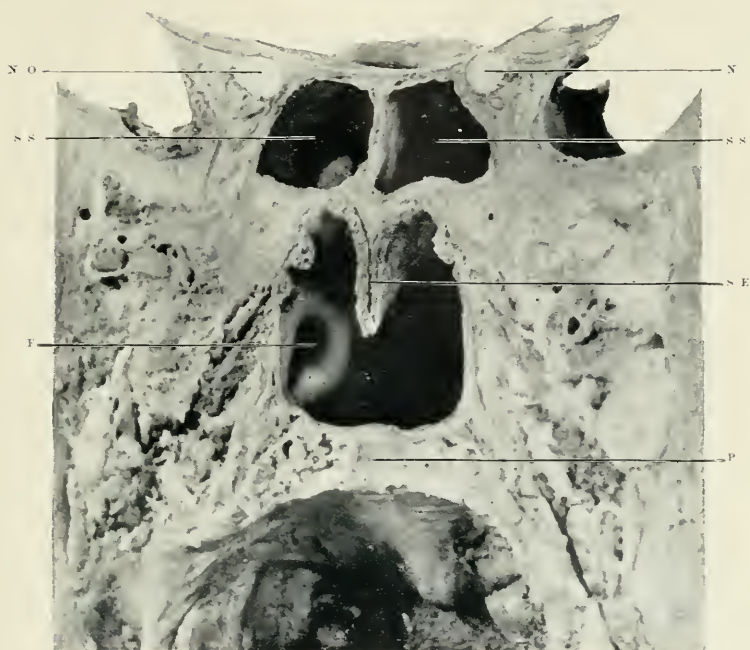


FIG. 5.—Natural size; n o, nervus opticus; s s, sphenoid cavity; s e, nasal septum; f, Eustachian tube; p, palate.

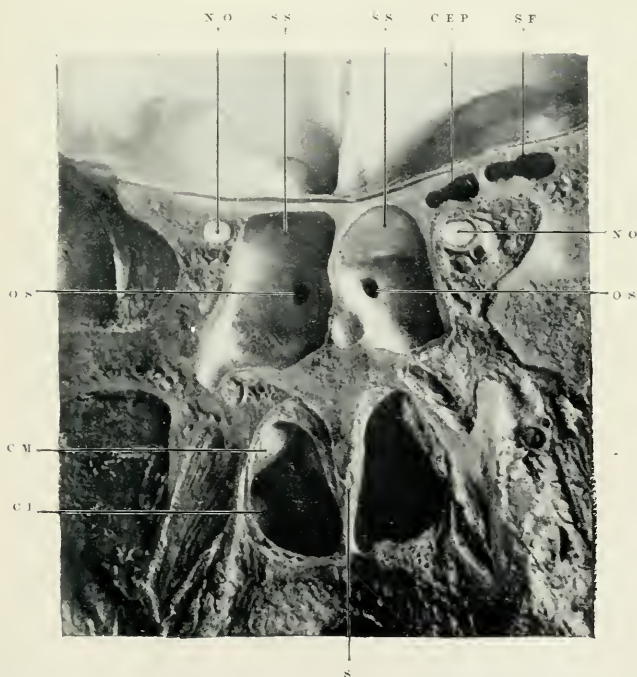


FIG. 6.—Natural size; n o, nervus opticus; s s, sphenoid cavity; c e p, most posterior ethmoid cell; s f, frontal sinus; o s, opening of the sphenoid cavity; c m, middle turbinal body; c i, inferior turbinal body; s, septum.



and Polyák. Mendel notices that cases of so-called retrobulbar neuritis may recover either spontaneously or under simple treatment. Besides this, literature affords cases of amaurosis in caries of an upper-jaw tooth in Manzigi's case, where the eye was always amaurotic if remains of food were present in the carious tooth cavity. Further, in Thamhayn's case, after inhaling ipecacuanha powder into the nostrils, the blindness disappeared in a few days. In Winkler's case retrobulbar neuritis disappeared after the removal of hypertrophy of the lower turbinated body. In a case of Königshöfer the optic neuritis ceased after the removal of adenoid vegetations. Bryan noticed in a case of chronic empyema of the frontal, ethmoidal, and maxillary sinuses a restriction of the field of vision for red and green. Castex mentions a case of bilateral hemianopsia, the result of ozæna, and Hirschmann of bitemporal hemianopsia in affection of the sphenoid.

In Baptie's case, after injecting a nasal polypus with carbolic acid, iritis and optic atrophy ensued. Finally, Hirschberg noticed hemianopsia in one case of empyema of the right antrum, ethmoid and sphenoid cavities after the operation of opening these cavities.

I have mentioned every case which throws light on this subject, to prepare the way for the discussion of the questions at issue.

Let us study more closely the four questions I have stated and put to ophthalmologists. A causal connection and cure after treatment are asserted in the cases mentioned by Lor, Coppez, Bergmeister-Hajek, Fleiss, Hoffman, Mendel, Halstead and Sargent F. Snow. Causal connection, confirmed by necropsy, is established in the cases of Duplay, Horner, Panas, Rouge, Russel, Raymond, Ottmann, Demarquay, and Vossius. Unilateral disease is brought into prominence as evidence of causal connection by Lapersonne and Mendel; such unilateral diseases are recorded by Lapersonne, Snellen, Mendel, Post, Duplay, Horner, Panas, Rouge, Russel, Demarquay, Vossius, Leber, Eversbusch, Coppez, Lor, Bergmeister-Hajek, Fleiss, and Hoffmann. Bilateral blindness, existing for many years with empyema, or caries of the sphenoid cavity without causal connection, is not mentioned; a causal connection is accepted by Pollacsek and Polyák. If we consider those cases in which the theory of causal connection is strengthened by the occurrence of recovery after treatment, we may, so long as there is no reason to the contrary, make the following remarks: Retrobulbar neuritis, as we have seen, may be the result of suppuration of adjoining cavities; it may also



arise from other causes, may be cured spontaneously or by internal treatment; and just as it may be absent in cases of empyema and caries of the sphenoid cavity, there may also at the same time be present for other reasons a retrobulbar neuritis, which may recover spontaneously, as, for example, in the case of Coppez and Lor; or, as has been shown in other cases, may be impossible to cure by treatment in these circumstances. Special attention should be given to those cases in which the removal of dental caries, hypertrophic rhinitis, or adenoid vegetation, also the ceasing of the use of ipecacuanha powder, is followed by recovery. With these we must contrast several facts which cannot be accounted for. The above-mentioned results of *post-mortem* examinations confirm the existence of suppuration of adjoining cavities, basal meningitis, extradural and intradural abscess, caries, perforation of the sphenoid bone, thrombosis of the sinus cavernosus and vena ophthalmica. *Post-mortem* examinations are defective, microscopic investigations of the optic nerve are wanting as to all minute particulars of the relation of the optic nerve to the diseased or healthy adjoining cavities, and, finally, of the examination of the venæ ethmoidales, of the vena centralis retinae, and of the veins of the diseased adjoining cavities. Were the characteristics of unilateral disease understood, and could they be discussed, an explanation of the anatomical relationships above described might also be given. The crossed amaurosis in Halstead's and Sargent F. Snow's cases, as also the different causes of retrobulbar neuritis, do not seem to favour a general acceptance of the theory involved.

Cases of bilateral blindness of many years' standing, with empyema, or caries of the sphenoid cavity, without causal connection, are not mentioned in literature; the demonstration of a causal connection in the cases given by Pollacsek and Polyák is doubtful. In Pollacsek's case, the patient, aged thirty, suffered for fifteen years from headache; for four years pieces of bone had come out of the nose (during antisyphilitic treatment the bridge of the nose fell in); for three years there had been defective sight, and finally blindness. The condition of the eyes reported was posterior synechia in the right eye, corneal maculae, and optic nerve atrophy, and neuritis of both eyes. The nose showed atrophy of the mucous membrane, defect of the septum, empyema, and caries of the sphenoid cavity. In discussing this case we have emphasised the fact that there is no positive basis for the supposition of a causal connection between bilateral blindness and caries of the sphenoid cavity. The headaches which lasted fifteen years, the necroses of the nasal septum, the fallen-in nose, three

PLATE IV.

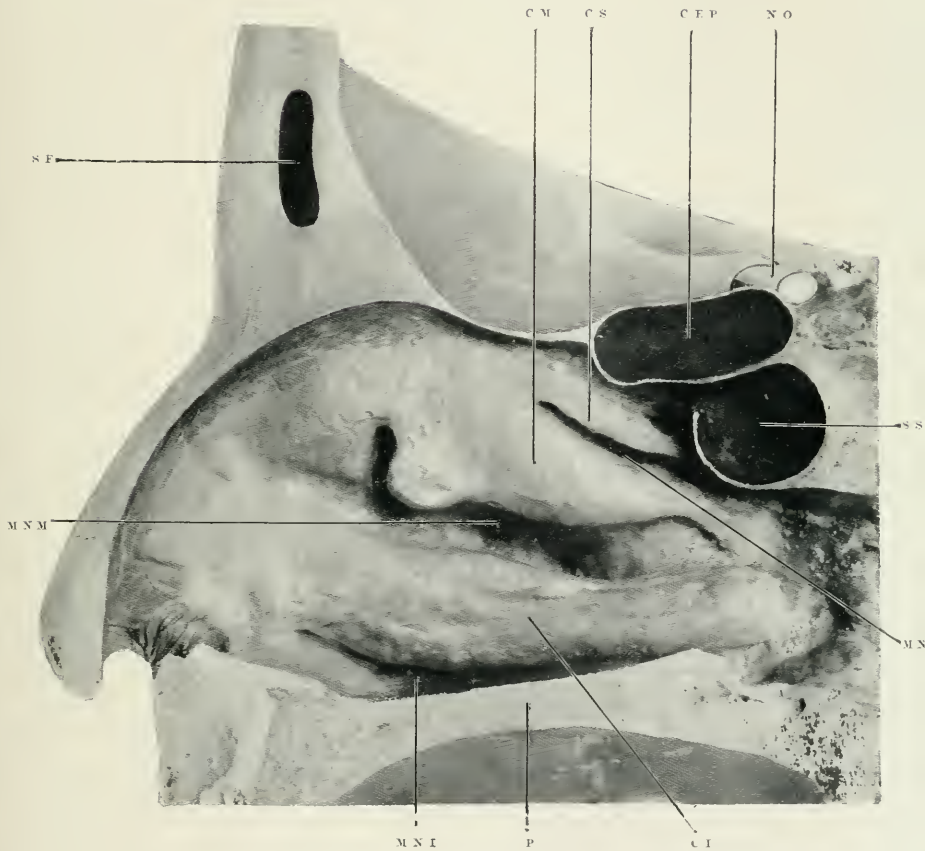


FIG. 7.—Natural size, right side; C E P, right posterior ethmoid cell; X O, nervus opticus; S S, sphenoid cavity; S F, frontal sinus; C S, superior turbinal body; M X S, superior meatus; C M, middle turbinal body; M X M, middle meatus; C I, inferior turbinal body; P, hard palate; M X I, inferior meatus.



years' blindness, and softness of the anterior wall of the wedge-bone cavity, point to syphilitic changes in the region of the optic nerve, even if the observer finds no evidence for syphilis. In Polyák's case there was latent multiple suppuration of the adjoining cavities, with formation of a bony cyst, exophthalmos, and atrophy of both optic nerves, and loss of sight for four years on the right and for three years on the left side. His supposition, "that the pus in the bone cyst found its way into the adjoining cavity, first on the left and then on the right side, and that, nowhere finding an outlet, it led to the dilatation of these cavities and to the pressure symptoms, was strengthened at the operation, at which a great quantity of matter (150 to 200 c.cm.) was withdrawn; further, it must also be taken into consideration that in a few minutes all the matter from the adjoining cavities was removed, this being only possible if the adjoining cavities formed a large communicating cavity. That the blindness which developed later in the left eye, owing to the pressure on the optic nerve in the optic canal, in the same way as in the right, gives, indeed, no further proof." The demonstration of a causal connection was doubtful; the facts and investigations allow grounds for hypothesis only. Goldzieher doubts the nasal origin of bilateral blindness, and considers it probable that the processes are independent the one of the other. The patient has, so to speak, a tower skull with the characteristic exophthalmos. I have mentioned *post-mortem* examinations which throw light on the connection of tower skull with exophthalmos and blindness.

Goldzieher demonstrated two cases in which I found nothing beyond moderate adenoid vegetations, only a characteristic anosmia which, like the blindness, found its explanation in hyperostosis. In Ponfick's case, added to these premature interferences in development, were purulent nasal catarrh and suppurative meningitis. Empyema of the adjoining cavities may in the course of years be associated with such cases quite independently through exophthalmos caused by hyperostosis and blindness, and should by no means be made answerable for the original blindness arising from other causes. Diseases may exist side by side without having any real causal connection.

We will now deal with the etiological factors which concern the question under consideration. The mechanical injurious action of tumours and trauma we have already touched upon. Among etiological factors are infection, spread of inflammation, congenital bone defects, and circulatory disturbances. Our knowledge with regard to the network of veins and lymph passages of these



cavities cannot yet be considered perfect; they play an important part in the spread of inflammation, but await further investigation. I have discovered and described one semi-canal leading to the ethmoidal cells, the *semicanalis ethmoidalis*, which anomaly I consider important in the spread of inflammation as also in the origin of direct thrombo-phlebitis and circulatory defect. This semi-canal, of varying length, extends from the *foramen ethmoidale anterius* to the anterior cranial on the wall of the frontal sinus or the orbital cells, namely, the *ethmoid fossa cell* situated in the roof of the orbit. The *arteria ethmoidalis anterior* runs in this semi-canal with the accompanying veins and the *nervus ethmoidalis anterior*. These structures, covered by the mucous membrane, lie free in the cavities mentioned; the mucous membrane is connected also with the orbital periosteum and the *dura mater*. The *semicanalis ethmoidalis* was noticed three times in the frontal cavity; the length varied between 5 and 8 mm. In the first orbital cell the *semicanalis ethmoidalis* appeared nine times; the length varied from 7 to 10 mm. In the second orbital cell the *canalis ethmoidalis* appeared four times, length from 4 to 10 mm. In two cases with congenital fissure of the *lamina papyracea* a *semicanalis ethmoidalis* 8 to 9 mm. long was to be seen in the orbit cells. The disease may proceed along this semi-canal in both directions, cranial and orbital.

Further, owing to the connection of the ethmoidal veins with the dural venous plexus and with the *plexus ophthalmicus*, circulatory defect and thrombo-phlebitis may be caused by the ethmoidal veins being covered by diseased mucous membrane, and may spread in the directions indicated. Those vascular cavities with their vascular furrows leading to the orbit, which I have often found on the anterior lateral wall of the sphenoid cavity, may also play a part, not only because these vascular furrows may show physiological fissures and consequently favour the spread; or the direct breaking through, of inflammation, but also in these ways circulatory defects may arise. These vascular cavities and furrows connect the network of veins of the sphenoid cavity with the *sinus cavernosus* and with the *plexus ophthalmicus*.

The above-mentioned bone defects of the sphenoid cavity walls and in the *canalis opticus* are of importance in the spread of disease; they favour intra-cranial complications. Importance attaches to this condition in that it is connected with the different conditions of the bone walls. I have shown that if the *canalis opticus* is formed by the posterior ethmoid cells, the septum is always extremely thin—thin as paper—while the wall of the

PLATE V.

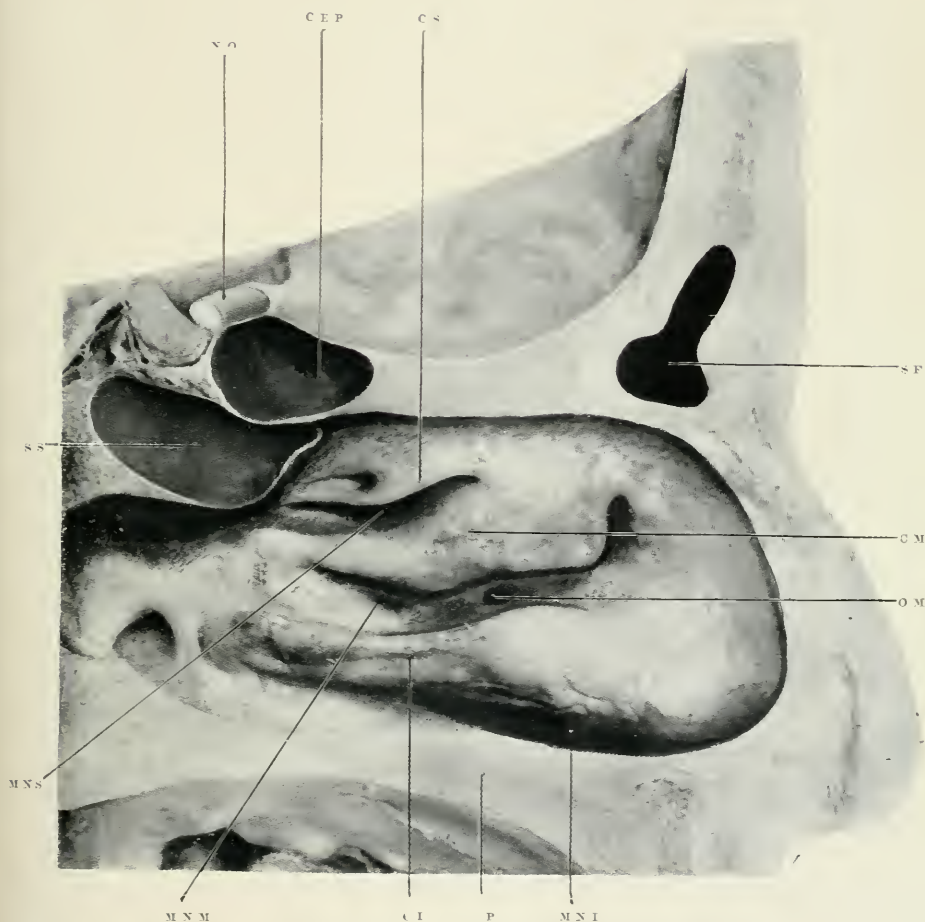


FIG. 8.—Natural size, left side; *CEP*, most posterior right ethmoid cell; *NO*, nervus opticus; *SS*, sphenoid cavity; *CS*, superior turbinal body; *SF*, frontal sinus; *MNS*, superior meatus; *CM*, middle turbinal body; *MNM*, middle meatus; *OM*, ostium maxillare accessorium; *CI*, inferior turbinal body; *MNI*, inferior meatus; *P*, hard palate.



sphenoid cavity at the summit of the foramen opticum, as we have seen, may be of different thicknesses. That this fact plays a part in the spread of the process is not to be doubted. *Post-mortem* examinations have shown in particular cases perforation of the sphenoid cavity; more minute details are wanting, and it cannot be ascertained in spite of many experiments whether meningitis is directly infectious, whether erosion of the above-mentioned thin walls or the fissures and veins and vascular cavities play any part in the spread of disease. It is important to note that meningitis and thrombosis occur mostly in cases of unilateral, less frequently in bilateral affection. This fact throws doubt on cases of bilateral disease of the adjoining cavities and bilateral blindness, in which, on account of a hypothetical belief of causal connection, the occurrence of intra-cranial meningeal complications (of many years' duration) in suppuration of adjoining cavities is constantly noticed and the already-mentioned doubt of causal connection is justified.

We emphasise the fact that microscopic investigation in the future, in order to be of value, must in every case establish the fact of the connection of the sphenoid cavities and the posterior ethmoid cells with the optic canal and nerve, the possibility of the spread of infection, interference with circulation in the network of veins, the state of the walls of the adjoining cavities, and the existence of the above-mentioned fissures and the semicanalis ethmoidalis. Histological investigation of the optic nerve should evidently not be omitted.

The facts we have brought forward show that our knowledge of optic nerve lesions, and especially of canalicular disease of the optic nerve, of nasal origin, presents many gaps. Rhinological and ophthalmological research must go hand in hand in order to obtain a more definite solution of several important questions now open. My rhinological standpoint in the question raised is the following: On the basis of my investigations the usual conception about the relations of the optic nerve, and the conclusion drawn from it to explain visual defects, must be corrected; and that the causal connection through disease of the posterior ethmoid cavity, must be cleared up. At the same time, the relation of the posterior ethmoid cell to the optic nerve above described explains the frequent negative cases of visual disturbances in connection with empyema, caries, and necrosis of the sphenoid cavity. In those cases in which a close relationship exists between the sphenoid cavity and the optic nerve, the variations in the thickness of the sphenoidal wall at the summit of the foramen opticum may play a



part in stopping the spread of disease. In those cases where the posterior ethmoid cell forms the wall of the optic canal, the extremely fine septum may favour the propagation of disease. The fissures described in the optic canal and in the anterior lateral wall of the sphenoid cavity may be the direct cause of perineuritis optica and intra-cranial and meningeal complications. Ophthalmologists who know best the various causes of optic neuritis and atrophy, may be able to state whether unilateral visual disturbance in disease of the sphenoid cavity can be looked upon as characteristic as Lapersonne and Mendel have done. From our investigations we can only give the following explanation of unilateral visual disturbance in causal connection with suppuration of the adjoining cavities. In the first place, it must be emphasised that if unilateral visual defect points to suppuration of the adjoining cavities, causal relation should not exclusively be attributed to the sphenoid cavity, but the posterior ethmoid cells must also be taken into account, and subjected to a complete examination. A close connection on both sides between the optic nerve and either the sphenoid or the ethmoid cavities is infrequent. In most instances we find either on one side the sphenoid cavity and on the other the posterior ethmoid cells in relation with the optic canal, or this relation is present only on one side, with either the sphenoid or the posterior ethmoid cavity. These relationships may in the frequent unilateral sight defects be taken into consideration in connection with disease of the sphenoid or ethmoid cavities. In the recorded cases of crossed amaurosis Halstead has shown a breaking through into the other sphenoid cavity and an old-standing neuritis; to explain this striking occurrence Hepburne suggests that there was first thrombosis of the vena centralis retinae; in the analogous cases of Sargent F. Snow amaurosis might have been due to this. Both hypotheses are not plausible. That crossed amaurosis may thus arise appears from our observations, since we have shown that an extended right posterior ethmoid cell may come in contact with both optic nerves, in those cases mentioned where empyema of the ethmoidal cells also existed; such an anomaly might also be possible, that the posterior ethmoid cell on the other side had a semi-canalised ethmoidalis, and in that case crossed amaurosis through direct interference with circulation might easily be accounted for. I would call attention to the semicanalised ethmoidalis with ethmoidal veins in the frontal cavity and in ethmoidal cells as already described by me, as well as to those vascular cavities and furrows with emissaries into the anterior lateral wall of the sphenoid cavity

which are calculated to bring about direct disturbances in circulation, and thrombosis in cases of empyema of the corresponding adjoining cavities. If thrombosis of the vena centralis is observed from other causes, it may arise from suppuration of the posterior adjoining cavities on the basis stated. In general, bilateral sight disturbances are shown to be intra-cranial, even if the possibility of bilateral disease of the sphenoid cavity is admitted. Whilst we realise that bilateral sight defect may for the most part be intra-cranial, we notice that the optic nerve may have a close relation, not only with the sphenoid cavity, but also with the posterior ethmoid cell; and accordingly in bilateral sight disturbance of nasal origin the etiological factor may be not only disease of both sides of the sphenoid cavities, but also disease of both sides of the ethmoid cells. Our observations admit also of the possibility that in disease of the posterior ethmoid cell of one side there may also be bilateral sight disturbance, since the above-mentioned large posterior ethmoid cell may be separated by a common wall, thin as paper, from the chiasma and from both optic nerves. I have always spoken of the disease of the posterior ethmoid cell on account of its close connection with the optic nerve; It is, however, known and taken as a matter of course that the posterior ethmoid cell becomes diseased with the ethmoid labyrinth or with the sphenoid cavity.

I have put together on a basis of my investigations all the material at my disposal, to explain the present-day position of this question, to point to this question waiting for solution, to draw general attention to this interesting and important subject. Whilst I commend these questions to the special attention of the ophthalmologists, I shall hope that the joint rhinological and ophthalmological study of this subject, in many respects still unknown, will lead to successful enlightenment.

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## THE ETIOLOGY, TREATMENT AND PROGNOSIS OF INNOCENT LARYNGEAL GROWTHS.

BY DR. DUNDAS GRANT, F.R.C.S.,  
Surgeon to the Central London Throat Hospital.

In this paper consideration will be limited to non-malignant growths found in the interior of the larynx, and chiefly to those

<sup>1</sup> Introduction to a Discussion at the Annual Meeting of the British Medical Association at Oxford, July 28, 1904.

points in relation to them which are of practical importance with regard to treatment.

The removal of the cause is an essential step in treatment in medicine, but to a less extent in surgery. In the particular branch of laryngology under discussion it is obviously of very secondary importance as compared with the operative removal or destruction of the growth, but in regard to prophylaxis and the prevention of recurrence after extirpation its consideration is indispensable. The etiology of these growths becomes, therefore, a question of practical weight, and it is to be regretted that it is often veiled in obscurity.

Many growths in the larynx are so closely related to inflammatory products that they cannot be distinguished from them, and indeed are identical with them in their anatomical structure. Their diversity depends mainly upon which elements in the composite structure of the laryngeal mucous membrane are chiefly affected. Ruault, in his contribution at the recent meeting of the French Society of Otology and Laryngology, concludes with the statement that "the group of benign tumours of the laryngeal mucous membrane clinically designated under the name of *laryngeal polypi* is purely artificial and ought to be, in the present state of our knowledge, included with chronic laryngitis."<sup>1</sup> Chiari is quoted by Schech<sup>2</sup> as saying that genuine fibromata are rare, and that those described as such are almost always inflammatory products with hypertrophied epithelium and connective tissue, in which are found cavernous blood spaces, serous infiltrations and hæmorrhages. Chiari's own words are: "They ought not to be looked upon as fibromata, but only as circumscribed hypertrophies of all the superficial layers of the vocal cord, therefore polypi as understood by Eppinger; their development from chronic inflammatory thickenings and swellings of the vocal cords can be proved by the examinations of serial sections of two polypi of the vocal cord, as also by clinical observation. Each factor in the growth of the polypus is mainly a congestion which expresses itself partly in dilatation of vessels, partly in the formation of large connective-tissue spaces, partly in hæmorrhages, and partly in serous effusion. Cavernous blood spaces, serous infiltrations and hæmorrhages with their sequences are among the conditions most frequently found, while the connective tissue generally, on the other hand, diminishes. Finally, we frequently find the hyaline substance already described by Eppinger, which, according to the results of staining, is very probably derived from fibrin. I might further remark that probably

<sup>1</sup> *Bulletins et Mémoires de Soc. Franc. d'Otol. et Lar.*, tome xx, Part 1, p. 66.

<sup>2</sup> "Krankh. des Kehlkopf.," 1903, p. 221.

most of the other smaller growths on the vocal cords have the same structure, so that one ought correctly to describe them as 'vocal cord hypertrophies,' and not 'fibromata.'"<sup>1</sup>

Among the commonest growths in the larynx we find papillomata (pachydermia verrucosa) essentially identical with the pachydermia found in its most typical form on the vocal processes and in the interarytenoid space. Such growths as fibromata, fibro-papillomata, fibro-adenomata, cysts, and angiomata are also explicable as the results of inflammatory conditions. In many cases the sequence of events from an acute to a chronic inflammation with such subsequent hyperplasia as to constitute a tumour is evident; in other cases it is most obscure.

Those parts of the vocal cords which undergo the greatest amount of mutual concussion and attrition, such as the junction of the anterior and middle thirds (the most frequent nodal point during phonation), the vocal processes and the interarytenoid space, would seem to be most liable to chronic inflammatory and neoplastic changes. In the interarytenoid space the result is a diffuse thickening (pachydermia), at the vocal process—the typical pachydermic nodules. At the junction of the anterior and middle thirds of the cords there may be a "singer's nodule," consisting of a simple epithelial thickening (a miniature corn), a smaller or larger papilloma, generally of soft consistence, or a sessile or pendulous œdematous fibroma which may exceptionally contain glandular structure. It is a principle recognised by dermatologists that continuous pressure gives rise to loss of tissue or ulceration, but intermittent pressure to hypertrophy. This principle applied to the larynx would account for the development of outgrowths at the "singer nodule" point, also at the vocal processes.

Growths at the anterior commissure may depend on the same causes, but it seems likely that they are sometimes of developmental origin and are really embryonic remains allied to those congenital diaphragms, sometimes occupying more or less of the space between the anterior parts of the cords. In the description of a case showing such a diaphragm, exhibited before the Laryngological Society of London, Semon drew attention to this possibility in relation to the development of the larynx. He briefly summarised the description given by Roth<sup>2</sup> as follows: "At the commencement of fœtal development the two halves of the larynx were glued together by epithelial masses, which gradually cleared up from behind. In normal cases the whole epithelial mass disap-

<sup>1</sup> *Archiv für Lar.*, 1894, vol. ii, p. 13.

<sup>2</sup> "Heyman's Handbook," vol. i. p. 120.



peared, whilst in cases of arrested development an adhesion remained, more or less developed, in the anterior part of the glottis, and thickest in the neighbourhood of, and below, the anterior commissure."<sup>1</sup>

The name "papilloma" may be objected to in view of the fact that such a growth has very seldom anything to do with a papilla. Eppinger<sup>2</sup> includes "papillomata" along with what are generally termed "polypi," under the heading of "fibromata," applying to the former the term "papillary fibroma" and to the latter that of "fibroma tuberosum," "fibroma," or simply "polypus." Wyatt Wingrave,<sup>3</sup> in thirty-four cases of laryngeal neoplasms, found that fourteen could be described as "squamous papillomata," thirteen as "fibro-papillomata," six as "angio-fibromata," and one as a "cyst." Massei,<sup>4</sup> in his analysis of 500 cases, found 183 papillomata and 156 fibromata.

The causes of new growths in the larynx are in general those of irritation of the larynx; among these are wrong use of the voice and irritating vapours or dusty atmosphere (*e.g.* the blackboard chalk in the case of teachers. *Vide* Case 1). Excess in tobacco smoke (especially by "inhalation") may also be quoted. Nasal obstruction leading to mouth-breathing or purulent nasal discharges inhaled into the larynx are among the most potent contributories. It is most probable that syphilis may induce such chronic inflammatory changes as predispose to the development of new growths (Cases 2 and 10), but it is well known that the irritation of the microbes of pulmonary phthisis—the tubercle bacilli as well as the accompanying micrococci—is capable of exciting the growth of papillomata. Gouguenheim described several illustrative cases at the International Congress of Otology and Laryngology,<sup>5</sup> and the writer brought before the British Laryngological Association a very well-marked *post-mortem* specimen of such a condition, supplied to him by the late Mr. Walsham, with whom he had previously seen the case during life.<sup>6</sup> A French writer on medicine has stated that in almost every consumptive who wears a moustache there will be found a wart in the neighbourhood of the first knuckle of the left hand due to infection during the act of wiping the moustache. It is probable that laryngeal papillomata when multiple are due to microbic infection, but the bacteria found in

<sup>1</sup> *Proc. Lond. Laryn. Soc.*, vol. vii, p. 70.

<sup>2</sup> Kleb's "Handbuch der Path. Anat.," Bd. ii, p. 183.

<sup>3</sup> Unpublished communication.

<sup>4</sup> *Tri-State Med. Journ. and Pract.*, St. Louis, Feb., 1897.

<sup>5</sup> Paris, 1889.

<sup>6</sup> "Trans. British Laryn. Association," vol. i, p. 47.

them are usually so superficial that their presence there may be merely accidental, and so far as our present knowledge goes their etiological influence is unproved.

The following is a typical case of singer's nodules apparently due to over-use of the voice and the inhalation of atmosphere laden with chalk and other dust.

CASE 1.— T—, aged thirty-one, School Board teacher, first seen on account of hoarseness, which was worse after using the voice and better after rest of the voice. She was unable to teach the singing, although she had previously done so. There was found a small nodule at the seat of election on each vocal cord. She was advised complete rest both from speaking and singing, with the exception of Curtis's vocal exercises, which consisted mainly in the utterance of the sound "pmaw" in the "thin" register or the "head-voice." She was instructed, however, to omit the exercises rather than to persist with them if the sounds failed to issue with ease. Within a few weeks she was able to return to her duties and continued to teach without much difficulty. She now uses a wet sponge instead of a dry duster for the blackboard and practises a better method of breathing and voice production.

In the following case there was probably a predisposition resulting from an old specific infection with subsequent abuse of the voice.

CASE 2.— —, aged forty-five, complained of hoarseness of four months' duration and gradual in development. He had lived rather freely as regards food and alcohol, and had used his voice to excess in public speaking and also as an amateur "entertainer." There was a history of former specific infection. The fauces and pharynx were intensely congested, and the irritability of the parts was such that laryngoscopy was effected only with the greatest difficulty. A small papillated nodule was found on the edge of the left vocal cord at the junction of the anterior and middle thirds.

He was ordered complete rest for the voice, the inhalation of benzoin, and the internal administration of iodide of potassium.

When seen six weeks later there was a slight diminution in the growth and the irritability of the pharynx was sufficiently reduced to permit of the introduction of the writer's "safety" forceps and the complete removal of the growth.

A month later there was no regrowth, and the voice was quite satisfactory.

The prognosis of innocent laryngeal growths is dependent mainly upon their accessibility for removal and the possibility of avoidance of the predisposing and exciting causes.

If not removed, their tendency is to increase of growth, leading to fatal obstruction to respiration, all the more rapid in supra- or intra-glottic growths; also to continued and increased impairment of voice, more rapid in intra- or infra-glottic growths (in the latter case still more if the growth is sufficiently mobile to be driven up between the cords during expiration). Spontaneous disappearance is possible in the case of papillomata, but cannot be counted upon; in the same way a few cases have been reported in which the

pedicle of an intra-laryngeal polypus has given way and the growth has been coughed out.

After operation, recurrence is probable unless the removal is complete. The writer's experience would lead him to the view that single pedunculated growths at the anterior commissure are unlikely to recur, whereas sessile ones at the junction of the anterior and middle thirds of the vocal cord are very likely to do so, as also are multiple papillomata.

The question of malignant transformation of benign growths cannot be left unconsidered. Practically it only arises in connection with papillomata which in exposed parts of the body have a tendency, under repeated or continued irritation, to develop into epitheliomata. There is no reason for immunity on the part of the larynx, but the results of Semon's collective investigation seem convincing as to its extreme rarity. Moreover, the evidence, that while it occurred in 1 in 211 of the cases on which no operation was performed, and in only 1 in 249 of those operated on, allows a margin in favour of operation. This is a complete answer to those who have been inclined to attribute to the traumatism effected by intra-laryngeal operation a tendency to bring about malignant changes in innocent laryngeal growths. In the few cases related by Fauvel<sup>1</sup> in which this change appeared to have taken place, the removal of the growth had been followed by long-continued cauterisation.

Treatment is not necessarily always operative. The avoidance of exciting and predisposing causes—*e.g.* complete silence or limitation of voice to a whisper for several months—is sometimes sufficient in cases of very small nodules due to overuse or misuse of the voice. Coughing must be absolutely prohibited or prevented. Avoidance of smoking and smoky or dusty atmosphere, moderation or abstinence in regard to alcohol, and other causes of gastro-hepatic disturbance, are also valuable prophylactic and therapeutic factors. The correction of errors in voice-production is of vital importance. The writer is convinced of the beneficial effect of the vocal exercises devised by Holbrook Curtis<sup>2</sup> and of a rational method of respiration in the use of the voice. The occasional application of astringents may contribute, but the all-important factor is complete rest for the voice.

The following cases illustrate the beneficial therapeutic effect of these non-operative methods :

<sup>1</sup> "Traité Pratique des Maladies du Larynx," Paris, 1876, pp. 318, 757, etc.

<sup>2</sup> "Voice Building and Tone Placing," New York, 1896, pp. 142, 157.

CASE 8.—, aged sixty-seven, was referred to me June, 1902, by Dr. Gage-Brown on account of hoarseness which had gradually developed during the previous month. There was a distinct papillary outgrowth on the middle of the edge of the right vocal cord; there had been a slight huskiness of the voice of a year's duration, starting with an attack of pneumonia, but the condition only became very marked during the previous month, after a cold induced by a chill after golfing. An astringent spray was employed, but the patient, who used his voice to a very considerable extent as chairman and director of companies, agreed to maintain silence as much as possible, and, at all events, not to speak above a whisper. In a month's time the papilloma had practically disappeared, and when he was seen nearly a year later there was no sign of regrowth.

It need hardly be said that in a case like the above the exclusion of early malignant disease from the diagnosis was made with a sense of great responsibility. The possibility, however remote, of its being present rendered it extremely undesirable that any instrumental or caustic treatment should be practised.

CASE 4.—J. W.—, aged twenty-seven, seen in March, 1897, on account of hoarseness and loss of control of voice, which had been extremely marked for four months. She was in the habit of hunting, shouting, bicycling, singing, and giving imitations of various animals for the entertainment of her tenants and poorer neighbours. For three or four years she had been unable to produce a good singing voice; she had well-marked singer's nodules at the usual spot, and an elevation on the right vocal process. She was improved by "pmawing" on the thin register from C<sup>4</sup> down to C<sup>3</sup>. One and two per cent. solutions of salicylic acid in absolute alcohol were applied on two occasions, and she was ordered to use a globe nebuliser, but the essential element in the treatment was complete rest of the voice. Being a lady of considerable force of character, she carried out these instructions most literally, with the result that when she returned six weeks later the right cord was absolutely normal and the nodule on the left one was hardly perceptible.

In other growths removal is the only treatment, and it should be carried out *per vias naturales*. The form of instrument employed varies with the special experience of the operator.

The following practical hints, founded on the writer's practice, may meet with the approval of those who, like him, are accustomed to Morell Mackenzie's form of handle, and the forceps referred to are modifications of those with which that accomplished operator did his finest work.

Pendulous growths at the anterior commissure call for the cold snare, and, if it fails, Powell's or Lack's forceps with ante-flexed tips. Similar growths on the edge of the cord may be removed with the snare or the writer's safety forceps (Fig. 1). For sessile growths on the edge of the cord the latter instrument is pre-eminently adapted.

A general surgeon who was placed at somewhat short notice in charge of the throat department of an important hospital soon



after the introduction of this instrument, voluntarily expressed his gratification at having, even without any considerable amount of experience in laryngeal operations, removed a growth from the vocal cord by means of this forceps at the first attempt. Dr. Poyet of Paris wrote to me that by its means he had removed two singer's

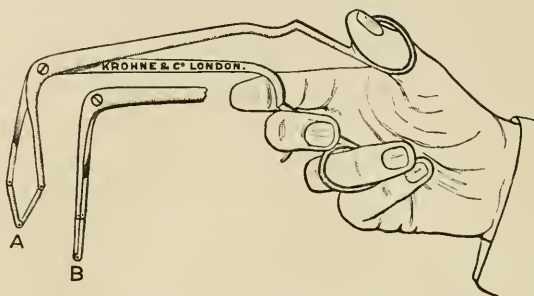


FIG. 1.—Dundas Grant's "safety" cutting forceps.

nodules and a fibroma without even the application of cocaine. The writer exhibited before the London Laryngological Society in June, 1898, a patient with a small fibroma on the right vocal cord, and in whom the epiglottis was so extremely pendulous that it was only with the greatest difficulty that the cords could be seen, and the manipulations of the forceps in the larynx could only be

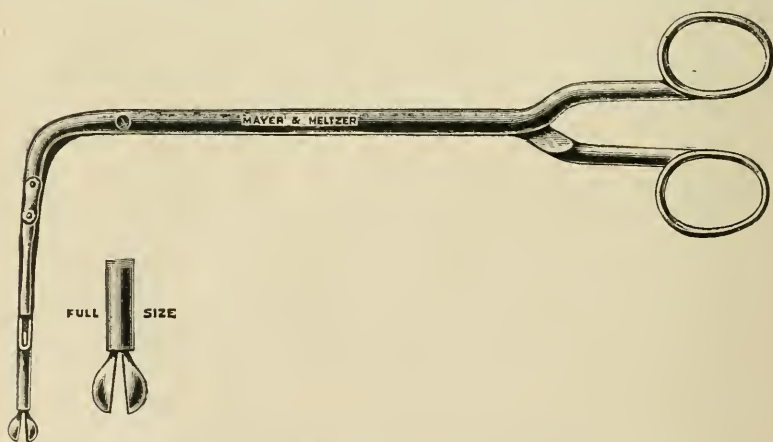


FIG. 2.—Whistler's laryngeal forceps.

practised *à l'aveugle*; he succeeded, however, in removing the growth in its entirety at two sittings. He considers that it would have been almost impossible to effect this with an unguarded instrument. Dr. Herbert Tilley at the same meeting described an almost identical case in which he used successfully the writer's forceps.

For growths in the posterior commissure Wolfenden's or Lake's forceps, and for those on the upper surface of the cord Whistler's (Fig. 2) are very useful.

The snare commends itself strongly on account of its safety, and some who have confined themselves almost entirely to it have achieved remarkable results; but, as the following case shows, its usefulness is limited even in the hands of one who was exceptionally expert in its manipulation.

CASE 5.—W. —, aged eight, had for four months suffered from loss of voice and attacks of dyspnœa, due to the presence of several papillomata on both vocal cords, the laryngeal surface of the epiglottis and posterior part of the left ventricular band. Numerous attempts were made to remove the growths by the snare, and she was handed over to me in order that I should extirpate them by thyrotomy; I was able, however, to effect their removal by degrees by means of Mackenzie's forceps. The treatment occupied a good many weeks, but the clearance was complete and recurrence did not afterwards take place. ("Trans. Hunt. Soc., 1890," p. 65.)

This case was treated before the introduction of cocaine and presented greater difficulties on that account than it would at the present day.

Krause's and Moritz Schmidt's are the best known of tube forceps. Various double curettes and other blades can be adapted to them. The advantages of these blades combined with a handle acting like that of Morell Mackenzie's are obtained by means of Watson Williams' recently devised instrument. A cutting punch forceps with blades adapted for the four cardinal points has been invented by Jurasz, and the writer has found it invaluable for the removal of portions of growths for microscopical examination. Professor Rosenberg has devised a very delicate forceps for cutting in a vertical direction.

Cutting ring-knives (Luc) and guillotines (Chappell) have been used by some, but British operators in general seem to pin their faith to some adaptation of Morell Mackenzie's instruments.

Anæsthesia by means of cocaine has rendered many of these operations easy which were formerly impossible. The best method seems to be the slow injection of about 5 minims of a 20 per cent. solution of hydrochloride of cocaine by means of a laryngeal syringe, so that the liquid is allowed to trickle over the edge of the epiglottis (Westerman). The combination of local anæsthesia (cocaine) and general anæsthesia (chloroform) introduced by Scanes Spicer has added still further to our possibilities. Lastly, Mount-Bleyer's "epiglottis-lifter" (Fig. 3) has greatly facilitated the writer's examinations and operations. Escat (Fig. 4) of Toulouse

and Lambert Lack have devised somewhat similar instruments. Kirstein's method of autoscropy of the larynx is available for growths situated close to the upper orifice of the larynx.

The distance from the dorsum of the tongue to the vocal cord is sometimes very considerable and beyond the reach of ordinary

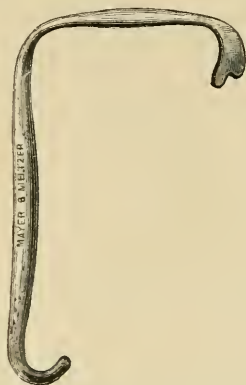


FIG. 3.—Mount-Bleyer's epiglottis lifter.

laryngeal forceps—say fully four inches. In such a case the writer recently eradicated a papilloma of the size of a split pea by a few touches of the fine galvano-cautery point.

For the destruction of the stump various caustics have been employed, such as nitrate of silver, formalin, chromic, trichloracetic

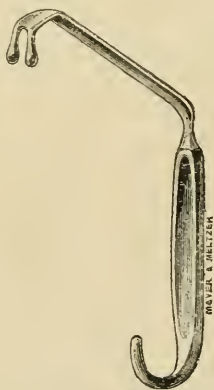


FIG. 4.—Escat's epiglottis lifter, with handle modified by Grant.

or salicylic acid (the last, named being in the writer's opinion particularly valuable).

In the following case the final result would appear to be due to the use of salicylic acid.

CASE 6.—S—, aged twenty-four, referred to me by Dr. Anderson Smith on account of extreme hoarseness, was found to have the interior of the larynx almost entirely

filled with a papillomatous mass growing chiefly from the upper surface of the left vocal cord and the middle of the right vocal cord and from the interior of the posterior part of the right ary-epiglottic fold, probably arising from the posterior part of the vocal cord. The growth was removed to a considerable extent by means of forceps, then various applications were made to the stumps. Under a solution of perchloride of iron they seemed to be stationary, under tincture of thuja they became distinctly larger, and then it was decided to make applications of salicylic acid dissolved in spirit, increased by 1 per cent. daily from 1 to 6. The 4 per cent. seemed to have an astringent action and speaking was easier; the 5 per cent. produced distinct whitening of the papillomata, the voice became clearer, the papilloma on the right cord much smaller and that on the left one diminished. The remains of the papilloma on the left cord, in order to hasten matters, was removed with forceps. The voice became much clearer. An 8 per cent. solution produced an intensely white pultaceous appearance on the stumps, but caused no pain. This application was continued daily for about a fortnight, and the voice was better than the patient had ever known it. Six months later the voice was very distinct and fairly clear, and after a long interval no further recurrence could be made out.

Salicylic acid may be dissolved in sulpho-ricinate of soda to the extent of 10 per cent. for application to warty growths in the larynx.

The writer's recent experience has impressed him very favourably with the value and practicability of the fine galvano-caustic point. In using it it is essential that the extreme tip of the platinum point should become instantaneously red and as rapidly extinguished, for which purpose the contact-maker should work very easily and the tip of the point should be filed to the utmost degree of fineness. Each touch should be as light as possible and carried out with the idea of doing "much less than seems necessary," as the effect is more extensive than would at first sight appear.

The following cases<sup>1</sup> illustrate this :

CASE 7.—The patient was a comparatively young vocalist and actress whom I brought before the British Laryngological Association in July, 1894, having removed a small fibroma from the right vocal cord at the junction of the anterior and middle thirds. The removal by means of my own forceps was so complete that the patient was enabled to return to her avocation and continued to act and occasionally to sing up to November, 1902, when she came again to me on account of a return of her hoarseness. I found a fibroma on the same spot, but more sessile than the previous one, and I was able to effect only a partial removal by means of my forceps. I then lightly touched the spot with a fine galvano-cautery point on three occasions, with the result that complete disappearance of the growth and perfect restoration of voice ensued. This has continued to the present day.

CASE 8.—Mrs. W., aged fifty-one, had been practically voiceless for three years. I found a sessile fibroma occupying nearly the whole of the anterior third of the vibratory portion of the left vocal cord and protruding to a considerable extent into the glottic slit. After removal of the main mass by means of my

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<sup>1</sup> The first two have been already published, *Lancet*, April 9, 1904; *JOURN. OF LARYNG.*, June, 1904.



forceps, I reduced the growth to dimensions somewhat less than indicated in the figure.

The following is Dr. V. H. Wyatt Wingrave's report as to the microscopical structure: "The growth consisted of a medullary part composed of fibrous tissue containing small fusiform nuclei with a few large oval nucleated cells (epithelioid), and also some large granular leucocytes. The matrix was homogeneous. The vessels (arteries) showed considerable thickening and were numerous. The surface epithelium was very irregular in arrangement, being corrugated and in parts dipping into the subjacent tissues, but was not fimbriated. It was typical stratified squamous on the surface, the deepest layer being columnar. There was no suggestion of active mitotic nuclear change and no nest or pearl formation. In parts there was some vacuolation. Its nature may be considered as a fibro-papilloma."

The small remaining stump was sufficient to prevent the emission of conversational voice, and the application of various astringents seemed to irritate the larynx without producing any diminution in the nodules. In spite of the difficulties in this particular case, to which I shall further allude, I succeeded in touching the stump with the galvano-cautery, and after five applications effected its complete removal, the voice becoming clear and strong, as it has remained till now.

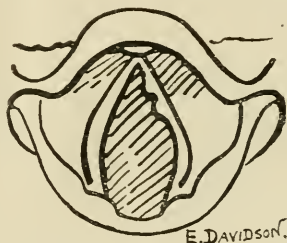


FIG. 5.—Condition before use of galvano-cautery.

The difficulties in this latter case were manifold. The patient was a somewhat rotund personage with an extremely protuberant "bust" and a short neck, so that there was little room for the hand of the assistant holding out the tongue and of the one holding the Mount-Bleyer or Escat tongue depressor, which the pendulousness of the epiglottis rendered necessary. In addition, the tongue was large in proportion to the size of the buccal cavity, even when the artificial teeth were removed. It was difficult even to introduce the laryngeal mirror. Finally, the epiglottis was pronouncedly "pendulous," and only very fleeting views of the seat of the disease were obtainable. It must be stated to the patient's credit that her good-will and patience were most exemplary. The introduction of my forceps required the exercise of some force, and the manipulation inside the larynx was necessarily carried out *à l'aveugle* in a way which would have been scarcely possible with a less guarded instrument. The use of the galvano-cautery had to be practised on totally different lines. For this the most complete illumination was necessary, so that the application should be made under the guidance of the eye. I, therefore, made use in the first instance of Mount-Bleyer's epiglottis lifter (Fig. 3), the tip being placed in the vallecula in front of the epiglottis, the pressure therein causing this to rise up so that the anterior part of the glottis could be plainly seen. I found, however, that Escat's instrument (Fig. 4) caused less discomfort, and in this particular case permitted of as good a view of the larynx being obtained. I was thus enabled, after cocaineisation, to overcome the difficulties I have mentioned, and to effect the application of the galvano-cautery.

CASE 9.—H. C.—, a shoemaker, who had formerly sung in a choir, applied to me on account of extreme hoarseness and feebleness of voice. There was on his left vocal cord a large sessile papilloma which I was unable to reach by means of my longest laryngeal forceps. I, therefore, resorted to the galvano-cautery point, and found that I had to bend the copper shank downwards to the extent of four inches. In four or five applications at intervals of a fortnight the growth was reduced to a vanishing point and the voice satisfactorily restored.

CASE 10.—A. C.—, aged twenty-five, complained of hoarseness of six months' duration; the cords were both swollen and red, and there was a nodule of about the size of a pin's head on the right one at the junction of the anterior and middle thirds. He had practised comic singing habitually, without having had any training in music or voice production, and had a history of specific infection five years previously. He was ordered in the first instance to rest his voice, give up smoking, and to take a mixture of biniodide of mercury, but at the end of a week this had not caused the slightest improvement. The nodule on the right cord was then touched with the galvano-cautery, and the left cord was scarified by means of Heryng's knife; when seen again five days later the nodule had disappeared; the scarifications were repeated, and the voice was greatly improved.

CASE 11.—Mrs. P.—, aged forty-six, applied to me on account of practically complete loss of voice. On examination she was found to have a large sessile growth at the most anterior part of the left vocal cord, which projected between the cords, although it grew mainly from the upper surface. The projecting portion was removed as far as possible by means of forceps, and the sessile residue on the upper surface was completely destroyed after three applications of the galvano-cautery.

The writer is convinced that the galvano-cautery might be employed in the treatment of these growths much more frequently than appears to be usual.

Among other means must be mentioned an instrument like O'Dwyer's intubation tube with thin walls having fenestræ cut in such positions as to engage the growth (usually papilloma in children) and snip it off. This is recommended by Lõri and Monselles, among others.

Tracheotomy may be practised in children with papillomata, who may not be amenable to endo-laryngeal treatment, more especially if breathing is obstructed, in the hope that spontaneous disappearance of the growths may take place. It is also useful for the removal of a growth so low in the larynx or trachea as to be beyond the reach of intra-laryngeal instruments.

The following case illustrates the effect of a tracheal growth coincident with a laryngeal one and necessitating tracheotomy.

CASE 12.—W. F.—, aged four, was first seen by me on account of hoarseness and difficulty in breathing on exertion (so that he was not able to run about and play like other children), of several months' duration. With considerable difficulty I was able to get a view of the larynx, in which I observed a papilloma as large as a currant. Under chloroform and cocaine I was able to remove a portion of it so as to produce some improvement, which, however, was only temporary. I again operated and removed some more of the growth, but found that the breathing

was not improved. I therefore performed tracheotomy; when the trachea was incised a large bleeding mass projected and filled it up, and I had great difficulty in introducing the cannula, the patient's breathing being still very imperfect; however, he very soon gave a violent cough and expelled through the tube a papilloma of considerable size, which had evidently been growing from the wall of the trachea and which explained the persistence of the dyspnoea. The tube was retained for several months before the patient could be induced to go without it, though endeavours were made to remove it from time to time.

That tracheotomy does not always lead to the disappearance of laryngeal papillomata will hardly be questioned. The following is a case in which, in spite of tracheotomy, the papillomata persisted for many years until removed.

CASE 13.—The patient, a girl aged twenty-two, went to the hospital on June 12th, 1902. She had never uttered a vocal sound in her life, and at the age of four months she had had tracheotomy performed on account of papillomata of the larynx, which completely blocked up the larynx. When she came to me she could hardly breathe through her mouth, and spoke in a whisper with the exaggerated movement of the lips which is so characteristic of functional aphonia. On laryngoscopic examination there was found to be an enormous papilloma growing from the base of the right vocal cord, almost concealing it from view, and below it could be seen the base of another similar growth, rising from the posterior part of the under-surface of the left vocal cord. I removed the former one by means of Gibbs' snare and the latter by means of my own intra-laryngeal forceps. This was accomplished at one sitting, and the tracheotomy tube was then removed and a strip of plaster applied over the fistula. It was then decided that the opening in the trachea should be closed up as soon as possible so that the patient might learn the art of phonation. In order to close the opening so that it would stand the strain of coughing without giving way I pared the edges and then undermined the skin so as to detach it from the deeper structures; firm catgut stitches were then passed so as to bring the two deep detached edges into the firmest possible position. The margins of the skin were then brought together and firmly stitched by means of silk-worm gut passed through and through from side to side, so that the cut edges pouted forward when the sutures were drawn tight. It was felt that though this was rather unsightly, it was the best means of obtaining the extreme degree of strength required. The patient received training in voice production, and rapidly learned to talk in a loud and natural voice.

This is one of the cases in which the papillomata have not disappeared after tracheotomy. It is, however, a good practice to perform tracheotomy in young children who are the subjects of papillomata, as the growths sometimes undergo spontaneous disappearance as the result of the operation. The writer is unable to cite from his own experience instances of this spontaneous disappearance, but he is convinced that in several tracheotomised cases the tendency to redevelopment after intra-laryngeal removal has been exceptionally inconspicuous.

Cysts on the lingual aspect of the epiglottis may be avulsed, or else they may be incised, preferably by means of the galvano-



caustic knife. Mr. Bark has collected notes of three cases, in two of which the symptoms were extremely slight, but in the third brought by the writer before the London Laryngological Society there were repeated attacks of feelings of suffocation, which entirely disappeared after the removal of the cyst.

Angiomata may be destroyed by means of the galvano-cautery.

Are there any circumstances which call for removal of non-malignant intra-laryngeal growths by external operation? Fauvel, with characteristic decision, rejected this absolutely. Certainly the cases in which it is justifiable are extremely few (we are not considering growths on the outer aspect of the framework of the larynx). When, however, all endolaryngeal methods in the most skilled hands available have failed, or the size, situation, or vascularity of the tumour make intra-laryngeal measures impracticable, external methods are called for. Infra-hyoid pharyngotomy is adapted only for growths which should be reached through the mouth.

Thyrotomy had formerly a high mortality, but is practically as safe as tracheotomy. It should, however, be avoided for fear of impairment of voice as the result of imperfect coaptation of the vocal cords. No doubt a more complete extirpation may be effected in this way than by the natural passages, and recurrence is thus made less probable, but it is by no means excluded.

CASE 14.—In a case under the care of the late Mr. Lennox Browne a growth below the anterior commissure of the vocal cords of a middle-aged man eluded the snare in his hands and every form of forceps available in mine. Thyrotomy was then carried out by Mr. Browne, and the difficulty in the case was found to be due to the depth of the site of attachment of the growth, as also to the length of its pedicle, which allowed of its being pushed down by the forceps instead of being seized by them. The voice was completely restored by the operation.

CASE 15.—In the following case, that of a little girl aged six years, affected with hoarseness almost amounting to aphonia and slight inspiratory stridor, I was specially enjoined to effect a complete removal at one operation. The child's temper could scarcely be described as other than "fiendish," and no doubt the violence of her fits of crying had led to the increase in the size of the growth, which I found by the laryngoscope to occupy the anterior commissure. The patient was put under chloroform by Dr. Hewitt, and then placed in the upright position upon a chair; 10 per cent. cocaine was applied to the pharynx, the tongue was pulled out by means of forceps, and Mount-Bleyer's epiglottis lifter was introduced and held in position by Dr. Jakins. A portion of the growth was removed with the snare, and some more of it by means of Lack's forceps; there still remained a small portion which appeared inaccessible to these instruments, and it was, therefore, decided to do thyrotomy. A median incision was made down to the cartilage, and the perichondrium was detached for a short distance on either side to allow of the passage of needles with thick silver wire through the cartilage in two places. The cartilage was then divided, from the outside, in the middle line, down to the



silver wire; the middle of the wire was then drawn out in the shape of a loop; a small opening was made in the crico-thyroid membrane, and a groove director, much curved at the point, was introduced through this, pushed upwards between the vocal cords, and made to protrude at the notch of the thyroid cartilage; the point was then cut down on and pushed out, a curved probe-pointed bistoury was pushed along the groove of the director and made to cut the thyroid cartilage from within outwards, absolutely in the middle line. The halves of the cartilage were then drawn asunder, and it was found that the remains of the growth had been accurately bisected, and to be rather less in amount than the appearance in the laryngoscope suggested; it was removed by means of sharp spoon forceps, its site canterised with pure phenol and dried. The halves of the cartilage were then brought carefully together, the silver wire being tightened up so as to act after the fashion of a hare-lip pin, as around them were twisted threads of silk-worm gut, which were allowed to protrude from the wound. The ends of the silver wire were threaded on needles and brought out through the skin on each side; they were lightly twisted together. The wound was then stitched up, dusted with iodoform and covered with an aseptic gauze dressing. In the evening I was hurriedly called on account of the occurrence of some amount of subcutaneous emphysema extending over the face and a considerable part of the chest and abdomen. I took out the lower stitches to allow of the escape of air from the opening in the crico-thyroid membrane. Within four or five days the emphysema had entirely disappeared.

When seen a year and a half later the voice was excellent and there was no sign of recurrence. There was probably a slight adhesion between the cords at their anterior extremity. As a coincidence there was a remarkable improvement in the patient's temper. It might have been better to have performed tracheotomy in the first instance in the hope that spontaneous disappearance would ensue, but the result seems to have justified the course pursued.

With regard to the removal of benign laryngeal growths only very wide rules can be laid down. The operator must be guided by the circumstances of the individual case and by his own experience. The writer has been of late increasingly impressed with the value of the galvano-cautery, especially for the extirpation of such sessile residua of new growths as could not possibly be removed by forceps without considerable and even unjustifiable laceration of the laryngeal structures. He would, however, advocate a judicious eclecticism.

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## THE ETIOLOGY, TREATMENT, AND PROGNOSIS OF INNOCENT LARYNGEAL GROWTHS.<sup>1</sup>

By PROFESSOR DR. ALBERT ROSENBERG, Berlin.

I CONSIDER it a great honour to be invited to open a discussion on the subject which has been assigned to me,—the treatment of

<sup>1</sup> Communicated to the Section of Laryngology and Otology at the Annual Meeting of the British Medical Association, held at Oxford, July 26-29, 1904.

benign tumours; and I undertake it with pleasure and appreciate it all the more as the invitation has come from a country which has been for a long time the home of laryngology, and where it has received the most zealous attention. It is nearly a century since an Edinburgh practitioner wrote on the pathology of the larynx and trachea, called attention to the occurrence of polypi, and made known even at that early date the importance of laryngology. In 1836 the College of Surgeons set as the subject for the Jacksonian prize essay the diseases of the larynx; it was won by Frederick Ryland. It is here that the father of laryngoscopy, Manuel Garcia, made and published his epoch-making observations fifty years ago.

As regards the discussion of this subject, Dr. Dundas Grant has already given you so excellent and detailed a report that very little remains for me to say; but I may supplement a little what he has said as to the treatment of benign tumours of the larynx.

The study of the history of medicine shows that even in laryngology old thoughts clothed in a new form may be fruitful; for in its essence the Kirstein autoscope, though in itself insufficient, really showed the way to the examination of the larynx and endolaryngeal operations. As early as 1750 Koderick of Brussels succeeded in seizing and removing with a running snare a laryngeal polypus through the mouth. In 1836 Regnoli of Pisa was able in the same way to remove a tumour of the epiglottis from a woman aged seventy; in 1852 Horace Green performed the operation in one patient with a sponge sound, and in another with a blunt-pointed knife; in the following year Middeldorff operated with a looped cautery.

In the same way, previous to the laryngoscopic epoch, the coughing up of polypi has been observed—for example, by Otto in 1824; Renard describes a case in which the whole tumour was brought up in a fit of coughing.

It has often been observed in our own time that tumours spontaneously grow gradually smaller or even disappear altogether—an instance is afforded by the case of a child a patient of Thorner's, after whooping-cough. I have, myself, seen the spontaneous cure of a papilloma of the larynx after measles. This spontaneous cure is generally met with after recovery from an infectious disease, but it is a rare occurrence. Once in a case of a man, aged fifty, I saw a hemispherical smooth red tumour, situated in the anterior commissure and the middle third of the vocal cord, which we took to be a fibroma, gradually become smaller and finally disappear, although it was in the case of a patient who did not despise tobacco

and alcohol, and who did not save his voice, for during spare hours he was a laryngoscopic subject used by other teachers and myself for many years in our classes.

On the other hand, I have never observed spontaneous cure, as have Lennox Browne and others, after the removal of a nasal obstruction.

I have noticed no special benefit from inhalation, insufflation, and injection; at the same time, in inflammatory nodules, as also in cases of the so-called singer's nodules, something may be said for astringent treatment; but it remains an open question how far recovery is due to the simultaneous sparing of the voice—at least, in female patients in whom I have seen this disappearance of growths after prolonged silence.

Jurasz recommends inhalation of sulphur water; Massei, 2 per cent. lactic acid, also formalin spray (1 in 2000–2500): Knight noticed the nodules disappear after the daily injection of adrenalin (1 in 5000) for three weeks. Further there comes the question, in the treatment of singer's nodules, of the use of the thin flexible forceps of M. Schmidt, which have quite small, sharp blades; and, if the nodule does not project beyond the edge of the vocal cord, of the use of the fine-pointed galvano-cautery. In the treatment of papilloma in children, *thiga occidentalis* (J. M. Brown) is suggested and recommended; also alcohol and painting with 10 per cent. alcoholic solution of salicylic acid, especially for the prevention of recurrence (Grant). I myself have made many trials with *summitalis sabinæ*, which is of great service in prominent condyloma, but with no result.

On the whole, however, the only right treatment for endolaryngeal tumours is operation; and all laryngologists are agreed that, with benign tumours, the endolaryngeal methods must, in the first place, and almost always, be used. When dyspnœa threatens, or there is good reason to fear that the endolaryngeal interference will produce so much swelling of the mucous membrane as to cause serious dyspnœa, or when an operation *per vias naturales* may not have the desired result, an external operation at the very outset is necessary. If tracheotomy be not imperatively required, treatment should always be carried out by the natural passages.

There can be no doubt that the introduction of cocaine into laryngology was a great advance, because by the use of this anæsthetic it is possible for not very experienced practitioners to remove a laryngeal tumour without special inconvenience to the patient. On the other hand, against this advantage we must weigh the drawback that the vocal cord to which the growth is attached

becomes lax, and does not become tightened by reflex stimulation, and so may be torn away, to a certain extent, with the new growth; so that there is a risk, by unskilful treatment, that more harm may now be done than formerly.

I cocaineise in the same way as Grant, by letting fall a 20 per cent. solution drop by drop out of the laryngeal syringe; thus no more cocaine is needed than in painting; the dose can be exactly adjusted and its localisation precisely controlled with the eye.

General anæsthesia in adults is only necessary in the rare and exceptional cases, such as a quite exceptional reflex irritability, or nervousness; Lewin, Schrötter, and Schnitzler have used it in these circumstances; M. Schmidt, twice in children, has removed a papilloma under bromæthyl anæsthesia. In children general anæsthesia is often necessary.

In the course of more than twenty years' practice, I have only once been obliged to use chloroform anæsthesia in an adult; a girl, aged eighteen, with a fibroma of the vocal cord, had such a dread of the operation that she would only consent to it on the condition that she was given chloroform. The anæsthesia should not be deep, otherwise the patient, who is in the sitting posture, becomes too limp, and cannot be maintained in a suitable position; and, further, the copious secretion of saliva covers the mirror, and, if a severe hæmorrhage occurs, the blood will be inspired. Moreover, on the other hand, it is necessary to cocaineise the larynx, as in the slighter degrees of anæsthesia the reflexes are not completely abolished.

Not only in children, but also in adults, if the epiglottis overhangs, or if the tumour to be removed takes origin from or near the anterior commissure, I have often employed with advantage an epiglottis retractor held by an assistant.

A special way of operating is that by which the tumour is removed without being seen, that is, the so-called sponge method recommended by Voltolini, to which his predecessors—and among them Horace Green, already mentioned—had resorted. In many cases I have succeeded by these means, in multiple papillomata in children, in removing larger or smaller pieces of the tumours, and so relieving the difficulty in breathing—for it is occasionally necessary to act with this object in view—but I have never succeeded in producing a cure. So, like Baldwin, Cheatham, R. Levy, Ranke, and others, I have tried intubation in such children with the same result. I would rather utter a warning with regard to these methods than recommend them; it is necessary when dyspnœa is threatening life, and when tracheotomy cannot immediately be



performed, to intubate the patient, to meet the *indicatio vitalis*. But, owing to their apparent infectiousness, papillomata may be spread by the tube to formerly uninfected parts, and all the more when the mucous membrane is irritated by the pressure of the tube, and thus predisposed to the growth of papillomata, as Ranke's observation appears to show. A hollow cylinder with sharp-edged fenestra has been used by Bocker, Voltolini, Nemaï, Monnelles, and others; this instrument is placed over the tumour from below, and tears it away by means of the sharp-edged fenestra, when the instrument is withdrawn. Lichtwitz inserts a fenestrated tube, and removes the tumour through the aperture with the aid of other instruments.

All these methods come under consideration only in thin pedunculated and more or less movable tumours, and in the case of little children. In some of these cases I have observed a better result when I used a cold snare; using the laryngoscope, and thus controlling the movement by the eye, I have pushed the loop round the tumour and then extracted. Recently, in a case of a child who allowed me to use the laryngoscope, even for a long time, I removed in this way, under the control of my eye, a papilloma as large as half the circumference of a finger from the anterior commissure, and thereby did away with the hoarseness and difficulty in breathing. With children who will not allow themselves to be operated on by the ordinary endolaryngeal methods, the autoscopic methods under anæsthesia come under consideration. In this way, Kirstein, Bruns, and others, have removed papillomata in children, and I have myself succeeded in two cases.

If success is not obtainable in this way, one may often succeed by gradually accustoming the children to laryngoscopic examination and endolaryngeal treatment and then operating. If this does not succeed, one can wait at first, or if there is dyspnœa, tracheotomy can be performed and an attempt made to proceed on endolaryngeal lines. It may often be noticed, however, after the withdrawal of the current of air from the larynx, where it seems to produce an irritating and stimulating action, diminution and gradual disappearance of the papillomata may take place.

If, after the removal of these tumours, recurrence takes place, cauterisation of their point of origin with lactic acid, chromic acid, the galvano-cautery, or similar means may be recommended. I prefer the galvano-cautery, which is more easily localised, and for broad-based tumours lactic acid. Thyrotomy, according to my experience, has neither better nor worse results to show than other methods (if one does not take into account the risk to the voice),

if it be deemed suitable for any particular case. It can in rare cases be undertaken without tracheotomy, but in most cases this is also necessary at the same time, and then care must be taken not to remove the cannula too soon (before about six months), as one is never safe from recurrence.

As regards endolaryngeal operation on other classes of tumour, especially those of adults, the same caustic and crushing methods have been adopted—especially since the introduction of cocaine—as were customary in the early years of laryngology, but shielded cutting instruments, which formerly were, perhaps, necessary, have been given up. We operate to-day, in principle, with the same instruments as are used under analogous circumstances with hand and eye in accessible parts of the body—knives, forceps, scissors, and snares.

Knives are seldom used now—they have been replaced by the more adequate forceps—at the same time they may be needed occasionally; broad-based polypi may be given a pedicle by cutting through the greater part of their base and then finally taken hold of with the forceps or snare and removed.

The cutting forceps are most in use—the blunt are quite given up. There are a great number of them; every operator has a preference for one or other. The Mackenzie forceps, on account of their long lever arm, require the employment of great strength and take up too much room. In most forceps the elbow is only a few centimetres above the cutting blade; the blades are generally closed, but may be open, as in the double curette, when possible they are so held that the thumb lies in the upper and the middle finger in the under ring; if, however, the distance to the larynx is relatively great—as, for example, in very tall men, or, if the tumour is very far forward, one is often compelled to put the thumb in the under, the index finger in the upper, and the third and fourth on the forceps, and to turn the forceps with the little finger as a fulcrum. In this last manipulation, one has not the same sure control as in that first described. Care should be taken that the cutting edge be sharp, because when at all blunt it does not cut the tumour away clean at its base, but may carry away a piece of mucous membrane of the vocal cord with it. To make it possible to cut in all directions, from front to back, sideways and aslant, Alexander made the Fränkel forceps rotatory. For glottic tumours Scheinmann constructed forceps the blades of which are bent at a right angle, so that they can catch below the vocal cord without damaging it. I have often used in quite small tumours the fine flexible forceps of M. Schmidt constructed for this purpose. The

double curettes, especially the Landgraf, cut, *cæteris paribus*, better; they demand exact and sure application, but are faulty in their curve, so that they easily leave a portion of the tumour remaining at both ends of the base. I have often experienced this drawback, and on that account constructed for myself a new curette. It has been made on the Landgraf principle, but its blade has a straight shank, so that when it is applied in the exact direction to the edge of the vocal cord, all that is above it can be removed with one cut cleanly and evenly. In this way I have entirely removed singer's nodules and broad, flat tumours projecting only a little beyond the edge of the vocal cord on which forceps slip easily.

With regard to snares, I have already mentioned their use in the operation for papillomata; they are especially useful when a large tumour with a relatively thin pedicle has to be removed, and the tissue to which it is attached has a certain firmness and can offer a certain resistance to the pull, so that the tissue from which the growth originates comes away with it. In other cases the galvano-cautery snare must be employed.

As to snares of this tearing character, in order to convert it into a really cutting instrument, I have had made a laryngeal snare on the principle of Jaenicke's nasal snare. It is possible with this snare, after it is drawn together, by simply pushing forward the slide, to push the snare out again and catch the tumour in it, to cut it off clean. The snare falls back into a sharp-edged slit in the front part of the snareshaft in such a way that the tumour is within the snare; when this is drawn together it is cut off clean as with a knife. By this means I operated some time ago on a patient who had a prominent white papilloma on the whole of the left side of the vocal cord and ventricular band, which seemed to originate from the ventricle, but inserted in reality on the edge of the vocal cord; I surrounded it with the snare, which drew together firmly, and so removed the growth entirely and at once without, as in the case of ordinary snares, tearing it, but, as was seen later, cutting it clean. Had I used forceps, I could only have removed it piecemeal on account of its size. For these tumours on the upper surface of the vocal or false cords I can strongly recommend this snare; if it is made flexible, or if the end of the snareshaft is made more vertical than horizontal, it can be used to remove tumours from other parts.

I need not go into further detail as to the choice of particular instruments for various tumours, for Dr. Dundas Grant has already reported on them, and I have little to add. In amyloid tumours a good effect may be produced by the administration of iodine,



especially in what is rather a thickening due to amyloid deposit in the submucous tissue; if the attempt does not succeed, or if the tumour has a pedicle, the snare may be employed. The cold or hot snare can be employed with lipomata, myxomata, and adenomata, according as they have a pedicle or a broad base.

I may mention, cursorily, Rossbach's method—a combination of external interference and endo-laryngeal treatment. If there is a tumour under the anterior commissure of the vocal cord which cannot be treated by the ordinary endolaryngeal route, he inserts a knife, resembling a tenotomy knife, in the middle line of the thyroid cartilage below the vocal cord into the larynx, and cuts the tumour out with it, whilst he controls the movements of the knife by means of the laryngoscope and directs the instrument by sight. This idea of Rossbach's was carried out in another way, thirty-five years earlier, by Prinz. In a patient with a subglottic polypus he made an opening into the larynx through the crico-thyroid ligament, introduced scissors or snares, and illuminated the tumour from above with a mirror. With the greatly improved technique of laryngological operations of the present day, such a procedure can scarcely be necessary, and, moreover, in such severe cases endolaryngeal methods in skilful hands lead to good results.

Tumours of the thyroid gland, which are always broad-based and situated beneath the vocal cords, can only be treated by tracheotomy or laryngo-tracheotomy with, if necessary, division of the cricoid cartilage. In the same way an attempt should not be made to treat cavernous angioma of the larynx *per vias naturales*. I have observed one such broad-based tumour which bled freely when touched gently, so that I gave up the thought of treating it even with the galvano-cautery. In smaller angiomas with a broad base the galvano-cautery in the form of points or the hot-snare may occasionally be tried; caution is, however, always necessary on account of danger from hæmorrhage. Enchondromata, if small, accessible, and not broad-based, can be removed with the knife or forceps; if they are large and broad-based, an attempt may be made with electrolysis, as also in other growths not suitable for endolaryngeal extirpation. If, however, they are so large as to produce obstruction to breathing, tracheotomy must be performed; and if the patient is not content with this, but wishes to be freed from his tumour, laryngotomy must be performed, or, as in most of these cases of enchondroma the cricoid cartilage seems to be involved, it should be extirpated with the tumour, as Bocker has recommended. Whether the patient will afterwards be able to live without a cannula is very questionable. Bocker's



patient, who recovered completely, could not do without a cannula, In some cases total extirpation must be performed.

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## SOCIETIES' PROCEEDINGS.

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### PROCEEDINGS OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY.

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*Tenth Annual Meeting, held in Chicago, Illinois, May 30, 31, and June 1, 1904.*

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*President : Dr. NORVAL H. PIERCE (Chicago).*

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*(Continued from page 609.)*

Dr. T. PASSMORE BERENS, of New York City, read a paper on *Multiple Chronic Sinusitis operated upon by the Maxillary Route.*

The author reported a series of fourteen operations through the maxillary route, with empyema of the maxillary antrum, ethmoid cells, and sphenoid sinus. The operation, which he described in detail, was performed as he saw it carried out by Jansen of Berlin. Following the description of the fourteen cases, Dr. Berens concluded with these remarks: To summarise, all the patients but one had disease of the sphenoid sinus; in twelve of these occipital and vertical pains were present; in eight—all with sphenoid disease—the pains extended also into the face, and were neuralgic in character, while in four cases pains closely simulated tic douloureux. These cases were all cured except two, namely, case twelve, which was malignant, and case nine, in which suppuration returned several times in the sphenoid, each return being marked by an attack of "tic." It seemed to the writer that the presence of pain in the vertex and occiput or trigeminal neuralgia when accompanied by pus in the posterior nares was symptomatic, almost diagnostic of sphenoid disease. In twelve of the patients there was pain in the region of the eye, especially in the region of the inner canthus. This pain was explained at the time of operation by the finding of disease in the most anterior ethmoid cells. In all of the cases except Case 5 there was a total absence of frontal sinus disease; and since they all were chronic cases, most of them of many years in duration, it was interesting to ask, What factor was present to preserve the frontal sinus from the primary infection, to cure it if it was infected, or to protect it from subsequent invasion

by the disease already established in the ethmoid region? Were the teeth the prime factors of the infection of the antrum, with a subsequent extension of the suppurative process upwards and backwards into the ethmoid cells and sphenoid sinus? and if so, why, again, did the frontal sinus escape? In eight of these cases the teeth were found diseased at the time of operation, or there was a clear history of diseased teeth—at least, of odontalgia. That diseased teeth caused many cases of antrum disease was not questioned, but on the other hand, the writer believed that many a tooth had been sacrificed when proper treatment of the antrum would have saved it. A tooth having roots protruding into a suppurating cavity, and being protected by only a thin mucous membrane, periosteal covering, could readily become diseased by contiguity of tissue; and the writer maintained that in some of his cases this actually had taken place—at least, to the extent of producing odontalgia. In all the cases excepting Case 12 and Case 9, there was a complete and permanent relief from pain following the operation. Of the nine cases operated upon more than a year ago, four had had a return of pus. Two of these cases were in the ethmoid region, and were cured by subsequent curettement; one was malignant, and one was in the sphenoid. The continued suppuration in the latter case was probably due to a prolongation of the sinus into the wing of the sphenoid bone, or some other similar condition. The return of pus in the ethmoid region was the result of fear, born of inexperience, of perforating through the internal plate of the ethmoid. Experience having given a better technique, the cases operated upon later had practically a complete exenteration of the ethmoid cells, and had not since suppurated. There had been a troublesome crust formation in four cases; but there was an atrophic process present throughout the whole of the nasal cavities before operation in these patients. The tear-duct was cut off in at least half the cases, but this had caused no symptoms, the duct simply emptying higher up. Arterial hæmorrhage deep in the wound was easily controlled by artery forceps in three cases. The possibility of hæmorrhage in this locality certainly demanded the most open kind of wound that it was possible to secure in any operative procedure that might have to be undertaken. In any of these three cases the hæmorrhage would have been practically beyond control had the operation been performed by the intra-nasal route.

In conclusion, the operation as described was advised only after a careful study of each case, and where the hope of a cure by milder measures could not be held out to the patient.

Dr. ROBERT C. MYLES said there were many things that

occurred in this class of cases that sometimes astonished them. One of the most remarkable things was the relief of pressure upon the venous circulation from operations in these cases—that is, in the return of blood to the heart. In removing the median wall between the nose and antrum, he had noticed a marked improvement in the condition of the ethmoid and sphenoid sinuses. In the so-called polypoid state, by extensive exsection of this region, after operation there seemed to be a sympathy between the different parts. Frequently the frontal sinus was involved, and a radical operation over the antrum, removing the median wall, would cause the frontal sinus to get well. Why, he could not say. But there had been a remarkable improvement in the ethmoid and frontal sinuses without cutting out the ethmoid cells. Thorough removal of the ethmoid cells was questionable in his mind. He had never seen it done. The ethmoid cells were very extensive; they extended up into the frontal sinus above the orbital cavity; they extended behind the orbit, posterior and external to the sphenoid cell. The expression “thorough removal” of the ethmoid cells was frequently used, and after having removed half a dozen there were many left. He did not think it would be considered safe to remove them all. If a number of them were removed it was sufficient. He had never had the opportunity of studying these cases through the antral route before and after operation. He had removed the median wall of the antrum or a part of the inferior turbinal through the antral route. He had thought it well to remove whatever he desired through the nasal region, and he had not had the experience the author had had to form an opinion that would be worth much. He could not understand how the author could do with a sharp curette what he said he did. He had tried it often; he had curetted thoroughly parts of the ethmoid, and every time the curette would dangle about. It was slippery, and he had to use forceps or rongeur to remove the fragments. He had not been able to clear this field in the manner in which it was done by many operators with the curette. The results obtained by the author were most excellent, and he thought as much of the benefit of the operation came from the removal of the tension on the circulation in the neighbouring parts as from entering the cavities. In many of these cases probably the frontal sinus was involved, and when the author removed pressure from the venous return, the absorbent lymphatics and others took up the morbid product, thereby resulting in a cure of the parts that were apparently diseased.

Dr. A. LOGAN TURNER said he had had no experience with the operation described by the author of the paper, consequently he did not feel competent to discuss it. However, after the author's description of the operation he congratulated him upon his success. When he got back to work he would certainly do the operation in the first case that was suitable. We ought to cure patients if we could, and he expressed the belief that this was possible; but what always seemed to him unpleasant was this large permanent opening between the nasal chamber and the antral chamber. He wondered whether the author could predict what the future of these patients would be in regard to taking colds, ordinary catarrh, whether there was risk of these patients getting their colds, as it were, in their opened-up antra rather than in their nasal cavities.

Dr. CHAS. W. RICHARDSON said there was in the paper one point little understood, and that was with reference to packing for three or four weeks. The speaker had done the operation just as the author had described it, and he had found it difficult to keep the packing in. In a case he had recently the packing fell below the uvula. He did not know what method the author adopted for keeping the packing in place. Most patients drew the packing down into the pharynx, and it was unpleasant to have to remove it. So he had given up packing in these cases.

Dr. BERENS, in answer to Dr. Myles' criticism as to the use of the sharp curette, said that in his hands it was quite satisfactory. He could make as clean a wound with the curette in this region as he could in any mastoid operation. Shreds of tissue did not follow its use. He went either through the posterior ethmoid cell or through the natural opening of the sphenoid, as happened to be the more convenient, and curetted downwards and outwards, and he had not had any trouble in using the large curettes in breaking down the anterior wall. He saved as much of the anterior wall external to the spheno-palatine foramina as possible. If he did not do this he might get a troublesome hæmorrhage, and in spite of the utmost care one might get severe arterial hæmorrhage from the spheno-palatine vessel, and this possibility was one of the strong points in favour of this operation, for one could readily control the hæmorrhage in breaking down the anterior wall because of the large wound. So far as not being able to remove all the ethmoid cells was concerned, one could take away the lateral masses, if he was careful in his technique. All of the cases of "tic" he mentioned in his paper were those occurring in patients in whom there was no tension from confined pus. They were all cases that had previously been operated upon intra-nasally or through the canine



fossa, one by himself and several by New York rhinologists. The sphenoid cells were open and were discharging pus freely; the ethmoids were discharging, also the antrum. An old lady, aged seventy-two, on whom he operated, got an attack of "tic" every time she had pus in the sphenoid, and there was a hole as large as a quarter of a dollar in the sphenoid. Notwithstanding this, she got an attack of tic douloureux every time pus collected there. In regard to Dr. Turner's question, he would say that in Case 4 the patient recently suffered from a severe coryza, with a mucopurulent discharge from both nostrils, but it caused much less trouble on the operated side and cleared up much more rapidly than on the affected side. This happened in three other cases. In regard to packing, after he took out the packing inserted at the time of the operation, he did not re-pack. As to keeping the packing in, if Dr. Richardson would insert the packing well up into the sphenoid sinus, he would catch the upper end and prevent the lower part from falling behind the uvula.

DR. H. HOLBROOK CURTIS, of New York City, read a paper on *The Sphenoidal Sinus and its Surgical Relationship*.

This was an interesting anatomical description of the sphenoidal sinus and its anomalies, its pathological conditions, his procedure of operating, and subsequent treatment.

DR. A. LOGAN TURNER said the subject of sphenoidal sinus disease was more or less in its infancy. Perhaps this was putting it rather too strongly, but we were still groping somewhat in the dark as to the best methods of attacking it. He thought the more recent work, as exemplified in the paper of Dr. Berens, showed that we were getting more into the general line of treatment. He had been impressed with the German literature on sphenoidal sinus suppuration, and by the apparently enormous number of cases which German physicians had under observation. One was not able to diagnose this condition in all cases. Certainly, one's experience was such as to make him believe that sphenoidal sinus suppuration was very common. He would like to hear from Dr. Curtis and others as to what the percentage was of sphenoidal sinus disease they met with in their clinical practice. The time was coming, if it was not already here, when we should look for a collective investigation of all sinus work. He had sometimes thought of taking the matter up himself, taking the time and opportunity to get from all the rhinologists of the world an expression of opinion as to the number of cases seen by them, the chronicity of the cases, the method of operating, the results, the fatalities,

relapses, the successful cases, the non-successful cases; then we would have valuable data and know where we were, and would get some idea as to the best methods of dealing with cases of accessory sinus invasion.

Dr. ROBERT C. MYLES thought Dr. Curtis' plan of procedure was the one that had been usually adopted by operators. In regard to the number of cases, very frequently there was simply a discharge of muco-pus, but the cases where the periosteum had been denuded, where there was a carious or necrotic area, or where there was some process going on invading the bone and in the future would invade the brain, were relatively rarer than the other class. In that class of cases we had evidence of destructive change, perhaps necrosis or other changes in the bone, and it was imperative to operate upon them. In removing the middle turbinate and posterior end, he had taken away as much of the anterior wall as he could. The curettage had been cautiously performed. He had gone into the sphenoid sinus with delicate curettes and found the wall practically gone. He had had cases with meningeal symptoms. He never curetted extensively, and the patients had all got well when it seemed to him that it would be impossible. The outcome had been a surprise to him in many cases. He could show cases of several years' standing, with a large opening in the sphenoid, that were practically normal except this large opening. The phenomena of pain and other distress were characteristic; and the secret of success was due to the large opening. These openings should be made by excision of the membranes that formed over them again from time to time. It was a simple thing to excise them.

Dr. CURTIS, in replying, said he did not intend to discuss the various operations that had been described from time to time for cases of empyema of the sphenoidal sinus. In regard to Dr. Turner's question as to statistics showing the percentage of sphenoidal sinus cases, when in Berlin two years ago he investigated the statistics given in the larger hospitals there, and found that the percentage of sinus cases in proportion to the attendance at the Berlin clinics was 50 per cent. greater than the percentage in the largest clinics in New York. Sinusitis being contagious, its frequency was accounted for very largely by the absence of fresh air in the crowded portion of the city, sleeping with windows closed, and insufficient nourishment. The operation he described in his paper was, as far as he knew, the first one of its kind performed, and it was rather interesting to look back upon it now. Dr. Berens had reported fourteen cases in which he made the operation

advocated by Mouret and Jansen, a procedure which was only to be undertaken when there was disease already existing in the maxillary antrum and in the ethmoidal cells. It would be an injudicious operation to undertake if the antrum were not diseased and the ethmoid cells not already invaded. In such cases a simple opening of the anterior wall of the sphenoid would be all that was necessary. In opening the sinus from the region of the maxillary antrum, taking the route between the ostium maxillare and palatal bone, one would be apt to infect cells not already diseased. He had not gone into that question at all, preferring to leave the subject of operation for another occasion.

Dr. S. E. SOLLY, of Colorado, read a paper on *The Treatment of Tuberculous Laryngitis*.

The author said that while it was true that the ultimate results of laryngeal treatment were greatly influenced by the accompanying pulmonary disease, yet what could be done by wise topical treatment over and above the general treatment was shown by the following statistics of cases treated in Colorado. Taking the results in laryngeal cases without considering the ultimate fate of the patient, there was permanent arrest of the local disease in 64 per cent., temporary arrest in 5 per cent. additional cases; in the latter the tissues again broke down shortly before death. Looking at the ulcerated cases alone, 50 per cent. healed permanently, and 10 per cent. temporarily.

After giving the reasons why laryngeal tuberculosis should be treated to its fullest extent, the author considered at length the pathological conditions.

As to the treatment, the first essential was to place the patient under the best hygienic conditions, especially under the open air treatment in a good sanatorium. The second was a change to a good climate, of which the preferable elements in their order were dryness, sunshine, cool air, and a high altitude. The third essential was local treatment by an experienced laryngologist.

Dr. FREDERICK C. COBB said that in the surgical treatment of tuberculous laryngitis he had removed portions of the arytenoids and curetted pretty thoroughly, and by so doing it had been frequently possible to prevent further invasion of the larynx by the tuberculous process. He thought the necessity for operating on laryngeal tuberculosis in a climate which would give the larynx a chance to get well was important. It was not easy to operate on cases of tuberculosis of the larynx, and several times he had seen adhesions form between the inflamed surfaces, an objection which



should be considered. In removing portions of the arytenoids it was found that the tuberculosis was sometimes so deeply situated that no amount of climatic conditions or any medicinal agent would have any effect on the process. In regard to the injection of lactic acid, which Dr. Solly recommended, he would try it. In Boston, if the patients were unable to go away, he had found lactic acid very beneficial in the ulcerative cases, and even in some of the more recent forms of the disease it seemed to effect the cure of the pathological process, while in œdema it seemed to have little or no effect.

Dr. PRICE BROWN supported what Dr. Solly had said in regard to the open-air treatment of laryngeal tuberculosis. At the Western Hospital all cases of tuberculosis of the lungs were treated by the open-air method, and why should not this treatment apply equally well to those cases in which the disease involved the larynx? They should be treated in tents, winter and summer. As to local treatment, he endorsed everything the author of the paper had said. If one had patients in a fair condition of health, who could attend daily, he could treat them with lactic acid. His plan usually was to wash out the pharynx with an alkaline solution, then apply a five per cent. solution of cocaine to the larynx, which was followed immediately by the application of 50 per cent. of lactic acid, to be applied every second or third day. Under this treatment the larynx usually clears up, the ulceration passes away, and the patient improves. In cases in which stenosis of the larynx was sufficiently marked to produce danger to life, and in which the lungs were not materially affected, he believed in tracheotomy. In one case of tracheotomy he reported last year he found so much infiltration of the larynx that the man's life was threatened. This man had worked all the winter with a tracheal tube in his throat. The first half of the winter he worked four hours a day with it and the second half eight hours a day. The epiglottis was gone, and the ventricular bands were bound down by adhesions. The larynx was closed too much for him to breathe easily, and he did not try to expand it for fear of auto-infection. He thought the disease had entirely disappeared. The man's temperature was normal, pulse in the morning normal, and in the evening slightly accelerated. He had not had the slightest rise of temperature since, and no cough. He had worn a tracheal tube for a year and a half, and had worked for the last six months steadily.

Dr. ARTHUR G. ROOT said that if one did his full duty to cases of laryngeal tuberculosis, he must carry out the suggestions laid down in the paper. Lactic acid stood as the first remedy in this



disease. So far as anaesthesia of the larynx was concerned, prior to applying lactic acid, he believed that cocaine when combined with adrenalin gave the best results. He thought the adrenalin acted much better when combined with cocaine, and the cocaine when combined with the adrenalin. Dr. Price Brown had emphasised an important point, namely, laryngeal rest.

Dr. J. A. THOMPSON said that one of the most important statements in Dr. Solly's paper was in the beginning, namely, we could prevent most of the severe laryngeal complications if the patient came early and the larynx was systematically treated before the stage of ulceration. A patient with ulceration of the larynx was not necessarily doomed. He could recall one case still living of a tubercular ulcer in the larynx twelve years ago. His method of treatment to prevent infection in these cases was a little different from that outlined by Dr. Solly. Dr. Jonathan Wright had shown that the direct invasion of the larynx was possible from the sputum if the larynx was acutely inflamed. If there was no acute inflammation, there was no direct invasion of the epithelium. By the systematic use of tracheal injections it was possible to greatly diminish the amount of expectoration and to render it much less virulent. In these cases his method consisted of daily injections, or injections every second or third day, depending on the severity of the case, into the trachea, using either menthol, camphor, creosote, or guaiacol, sometimes combined. One could prevent extensive inflammation in this way even in cases where the pulmonary disease was carrying the patient on to a fatal result. In cases in which the cough was so severe that the patients were restless and got no rest at night from incessant laryngeal tickling, one could control the cough, tickling, and irritation for four to eight hours by one injection, giving the patients a chance to retain their meals and sleep at night.

Dr. CHEVALIER JACKSON corroborated what had been said regarding the beneficial effects of tracheotomy in primary tuberculosis of the larynx, in which there was absolutely no pulmonary involvement. He had three patients who were wearing tracheal cannulae, every one of whom got much better after tracheotomy. In every case in which the larynx was affected tracheotomy would help materially on account of the degree of rest which it afforded the larynx. He used to be sceptical in regard to this. The respiratory movements of the larynx went on very much the same whether air passed in and out or not. There were associated muscular movements which went on even when the air current did not pass through, yet a certain degree of rest must take place, for

clinically there was much less irritation. Tracheotomy as a preliminary measure made the radical treatment of the larynx safe. The lactic acid treatment was undoubtedly of great value in cases of laryngeal tuberculosis; yet when there was stenosis and œdema of the larynx the patients could sleep much better if they wore a tracheotomy cannula, besides deriving its beneficial influence. He had seen cases of laryngeal tuberculosis get well, when other practitioners doubted the diagnosis, and he had felt a little sceptical about it himself. He exhibited one such case before the Section meeting in Pittsburg. There was absolutely no lung involvement in this case, and yet there were tubercle bacilli in the sputum. If there were any lung involvement, the finding of tubercle bacilli in the sputum would have been of very little importance. The patient had lived seven or eight years since her case was diagnosed as one of laryngeal tuberculosis by the late Dr. Daly and himself, and was still well, although deformity of the larynx existed, and the epiglottis was "mouse-gnawed."

Dr. ROBERT LEVY said that every now and then one heard from men throughout the country regarding the advisability of mild measures, and of the great detriment done to patients by radical measures. It was gratifying to hear the gentlemen agree with Dr. Solly relative to the radical treatment by laryngeal tuberculosis. We were apt to get into a rut. He thought the pendulum was now swinging in the other direction. In a disease, which offered so little hope in many instances radical methods had always appealed to him as the most desirable to adopt, especially in view of the fact that less radical ones offered absolutely no hope, either in palliative or curative attempts. The site of the ulceration was a very important point in determining the method to be followed. He was sure we all saw ulcerations in certain situations of the larynx that went on from bad to worse, leaving the patient absolutely no hope of recovery. On the other hand, ulcerations situated in other portions of the larynx offered every opportunity. It had been his experience that in those cases in which the ulcerations attacked the epiglottis and aryepiglottic folds, or as pointed out by Bosworth many years ago, the nearer one came to the outer air, the less the possibility of cure. In these cases the results were less gratifying than when the ulceration was situated deeply in the larynx, the ventricular bands, or the posterior commissure. As to the existence of chronic laryngitis, he agreed with the author that hygiene of the upper air passages, including the nose, pharynx, naso-pharynx, and larynx, was of great importance—not that these cases of chronic laryngitis in tuberculous individuals would de-

generate into a tuberculous laryngitis, but that there was a pathological condition of the upper air passages which offered an excellent site for the development of tuberculous lesions.

Dr. SOLLY, in replying, said they had a great many cases in Colorado that had not been treated along these lines. One of the chief difficulties was they had been treated too long and inefficiently, and when they came to them they were afraid of undergoing serious treatment. Patients had not been prepared for it, and one of the important things for physicians to learn about tuberculosis of the larynx was to work hard and try to make the patient well. It was absolutely necessary that patients should learn to submit to any measures that were needful to accomplish that purpose. One should not take away hope, but tell patients they must have treatment. Rest was very important. Opening the trachea was followed by a remarkable subsidence of the acute symptoms in many cases, and the patients sometimes lived for many years. Of course, this procedure was only admissible in extreme cases. Dr. Brown referred to the use of lactic acid. Lactic acid even on an unbroken surface had usually a good effect. As a rule, in these cases it was best to use the lactic acid well diluted, thus causing absorption through the mucous membrane, which was better than cauterisation with the strong acid. What Dr. Thompson said about early treatment was most important, and he thought it would be a great thing if the general practitioner realised the importance of getting his cases of laryngeal tuberculosis examined and treated by specialists as early as possible. People were frightened about their throats when they had chronic laryngitis, and when tuberculous invasion had gone on for some time it was not easy to tell what it was. There were a great many points touched upon in connection with syphilis and tuberculosis, and about the danger of stenosis which Dr. Jackson spoke of, but these did not come under the head of such cases as he had been referring to. One of the reasons why the curette had fallen into such disrepute was because so much wholesale butchery had been committed with it in the past, particularly in using the double curette. Certainly tracheotomy was sometimes a very desirable procedure before proceeding to other methods. He agreed with Dr. Levy that the locality of the disease largely determined the prognosis.

Dr. JOSEPH A. WHITE, of Richmond, Va., read a paper entitled "*Mastoiditis.*"

The author reported a case of this disease, which was complicated



by nephritis and erysipelas. The case presented some interesting points: First, the long continuance of the temperature changes. Second, the disappearances and recurrences of the suppuration. Third, the kidney complications, and especially the suppression of urine so long after the operation. Fourth, the development of erysipelas simulating sinus infection. The author reported the case in great detail because some one else might have had a similar experience.

Dr. H. HOLBROOK CURTIS stated that in December last year he had a similar case to that reported by Dr. White. The patient was a woman aged sixty-two years, who had albumen with granular and hyaline casts in her urine before operation. She was operated upon for mastoiditis in December. The operation was followed for four days by a temperature of 103-4° F., after which the temperature dropped, and on the eleventh day was normal. The patient was then attacked with erysipelas, with a temperature of 105° F., which lasted from the eleventh to the twenty-first day, after which time the erysipelas had entirely disappeared. As soon as the erysipelas had cleared up she passed fifty ounces of urine. The next day, however, there was suppression, which lasted two days. Hypodermoclysis was resorted to under the breast on one side, and over the abdominal wall on the other. The day following hypodermoclysis, although the action of the kidneys had been re-established, both areas of infiltration were erysipelatous, and she died four days afterwards.

Dr. C. R. HOLMES reported the case of a boy, aged twelve, who had been under observation for several months prior to coming to him. There had been made three Wilde incisions by those who previously had charge of the case. When he saw him his face was slightly cedematous, waxy in appearance, and the boy looked very sick. He was admitted to the hospital, and the urine was found to be loaded with albumen, and to contain large quantities of blood and casts. Looking into the history of the case, and conversing with the family physician, he elicited the statement that prior to an ordinary acute otitis media on the right side he was in perfect health, and that the albuminuria had developed in the course of the disease. He had been in the hands of an experienced man, but Dr. Holmes was informed that on account of the excessive albuminuria he did not desire to do the operation. The speaker, however, made the radical operation. The boy did splendidly. The anæsthetic did not affect the kidneys, and he was progressing well. There was a slight diminution in the amount of albumen and blood. The wound was healing rapidly.



Patient then developed a purulent otitis media on the opposite side, which necessitated opening the antrum (not doing the radical operation). The kidneys were so seriously involved that the boy finally died, although the ears up to a short time before death did quite well. Death was due to Bright's disease.

Dr. EDWARD B. DENCH said, after listening to Dr. White's paper, that there were one or two points to be borne in mind. The urine should be examined previous to operation. It was his practice to do this in every case in which he thought it was going to be necessary to perform an operation, and in a number of cases, he could not say how many, brought into the hospital there had been some albuminuria, but that was not a contra-indication to operation in many of them. The action of the anæsthetic might have had something to do with the albuminuria, and sometimes he had given chloroform rather than ether to prevent any congestion of the kidney in these cases. The question as to whether a mastoid abscess could be secondary to a kidney lesion was rather far-fetched. Of course, if one had a focus of pus in the kidney he might have a secondary mastoid abscess, the same as a secondary abscess in any other part of the body; but to consider the mastoiditis as dependent upon nephritis, except in a general way, was far-fetched. As regards the prognosis in cases in which albuminuria was present, he had never seen them do badly. It was true convalescence might be prolonged, but he did not think these patients necessarily would do badly if they withstood the operation. Some of the features in Dr. White's case were interesting, and he (Dr. White) probably struck the key-note of the trouble when he said that some of the cells in the mastoid might have been overlooked at the time of the first operation. Practitioners were very apt to overlook some of the cells lying in the zygomatic process. He had seen a number of cases in which the invasion of the zygomatic cells was started from pus, and in the deeper zygomatic process there were a few drops of pus. The same thing was true of the cells overlying the lateral sinus. He had had erysipelas develop in quite a number of mastoid cases—one in private practice—and it had developed in hospital cases more than once. The patients, however, had invariably done well. He recalled one death from erysipelas occurring in a mastoid case. The curious part of it was that it did not seem to make much difference how extensive the wound in the mastoid had been, or the exposure. In one case in particular, where the sinus was exposed to the extent of an inch or more during operation, the man developed erysipelas. In his early practice he felt much worried

that he would have to expose the sinus. This man developed streptococcus infection in his superficial structures, but recovered. So after all, erysipelas in cases of mastoiditis did not seem to be a very fatal complication.

Dr. HENRY L. MYERS said he had a case of acute mastoiditis in a young woman who had suffered an attack of la grippe. She had a slight chill, some temperature, and developed earache. The earache lasted four days before she came to him, at which time he found it necessary to resort to paracentesis. The following morning, tenderness not having diminished, he opened the mastoid and found pus in the antrum and in the tip. The next morning she was doing well. The following day, however, she showed a great deal of jaundice, and vomited continually; temperature rose to 101° F., and she seemed a little dull in mind. The next day she was delirious, and did not know anyone; temperature, 101° F.; pulse 120. He examined her urine and found it full of albumen. Her family physician thinking perhaps she might have had some malaria beforehand, examined the blood, but the plasmodia were not found. The leucocytes were 12,000 or 15,000. She was in this condition for twenty-four hours, then she began to improve. All her symptoms passed away as rapidly as they began. On the fourth day she was entirely herself, and her condition seemed to be normal. The question arose as to whether her urine was involved as a result of the mastoiditis, or whether she had previously had albuminuria. Personally, he was inclined to take the latter view. The possibility of a mild serous meningitis should also be considered.

Dr. CHAS. W. RICHARDSON said it was as necessary to find out the cause as the fact of invasion of the middle ear with mastoiditis. The administration of the anæsthetic might have been sufficient to cause the disturbance in the kidney, for if the urine were to be examined in these cases shortly after the operation, a high degree of infection of the kidney would be found. With regard to erysipelas, he had seen it in probably half a dozen operated cases, and he had been interested in regard to the mode of infection. One of his assistants called his attention to it, and he thought the probable source of invasion was through the excessive scrubbing of the skin. It was noticed that the infection began about three inches or more from the seat of the wound, either in front or behind, so that it was thought that infection took place through the excessive scrubbing of the skin in these cases. In the last year he had had three cases, and had followed each one, and did not have a death from erysipelas. Erysipelas had not

given him much concern. He had seen it follow operations, but never infect the wound, and the patients had all done well.

Dr. WHITE, in closing the discussion, said that his paper was read for the purpose of eliciting discussion. He was very anxious to hear the experience of others, and to know if any etiological connection could be drawn between nephritis and mastoid disease. He had drawn no conclusions himself, but had simply offered suggestions for discussion. It seemed to him, however, it was perfectly sensible to conclude in the presence of nephritis that the course of mastoid disease must necessarily be more or less complicated or prolonged, with the possibility of a relapse and a long convalescence because the system was lowered in its vitality. The whole condition of the patient was reduced by nephritis. The ordinary normal resistance in pyogenic cases was impaired, and the healing process must naturally be delayed. He thought Dr. Dench would have opened the sinus sooner than he proposed to do it. He had suggested mastoid operations not once or twice, but a great many times when the operation had been declined, and in nearly every instance the patient got well without having the mastoid opened. The fact that so many had declined the mastoid operation and had got well without it convinced him that operation was performed in too many cases. For instance, the very patient, as above reported, recovered without the sinus being opened, and had been well for four months.

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## PROCEEDINGS OF THE LARYNGOLOGICAL SOCIETY OF LONDON.

*Ninety-second Ordinary Meeting, November 4, 1904.*

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*The President, P. McBRIDE, M.D., F.R.C.P.Ed., in the Chair.*

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The following communications were made :

Mr. E. B. WAGGETT showed a *Diagnostic Specimen from Œsophageal Stricture Removed by Killian's Method.*

The specimen was shown to emphasise the importance of examining strictures by Killian's tubes and thus making certain of the diagnosis :

The PRESIDENT asked why Mr. Waggett spoke of the procedure as "Killian's method." His own impression was that Kussman was the first to use the rigid tube for the Œsophagus, and that Rosenheim and others had elaborated it.



Mr. WAGGETT, in reply, said he called it Killian's method because the instruments employed were devised by Killian. He thought the subject of œsophagoscopy ought to be taken up more largely in England than he believed was the case at present. He had now done some fifteen cases by that method, without difficulty, and there had been no danger to the patient. About half the cases were done under cocaine, and the remainder under a general anæsthetic. In every case he had assured himself of the presence of a stricture or of its absence. The tubes were valuable for removing growths from children's larynges, as he had found particularly on three occasions. It was easy to see the exact position of the papillomata in the larynx, and remove them with the tube forceps supplied in the case of instruments.

Professor HOBDAY, F.R.C.V.S. (introduced by Mr. de Santi) showed some *Specimens of Carcinoma in the Throat of the Dog and the Cat*.

Professor HOBDAY demonstrated specimens from five cases of true epithelioma of the throat of the dog and the cat, all of which had been confirmed by microscopical examination either by Professor McFadyean, of the Royal Veterinary College, or by Dr. Bashford and Dr. Murray, of the Imperial Cancer Research Fund. All five cases had been under the care of Professor Hobday, and had been met with since January, and, in fact, four of them since June in this year. He particularly drew attention to this fact because it used to be thought, even until recently by some pathologists, that carcinoma in the lower animals was exceedingly rare. He did not think that it was as common as other tumours, but now that the disease was particularly looked for, numbers of well-authenticated cases had been found in the horse, the cow, the sheep, the dog, the cat, and even the pig. Professor Hobday pointed out that one must not forget that cancer is a disease most frequently met with in old age, and that in the varieties of animals used for food, opportunities for the growth of such tumours are comparatively rare because the host is killed before reaching even adult age.

CASE 1 occurred in January, 1904, in a foxhound bitch, between seven and eight years old. The tumour was situated on the left side of the throat. The symptoms were those of lassitude and emaciation. The growth at first was supposed to be an abscess. She was sent to London for operation, and at the request of Professor Hobday discretionary power was given to painlessly put an end to her before recovering from chloroform if the growth were found to be a cancer and inoperable.

CASE 2 occurred in June, 1904, in a poodle, aged seven, the right side being affected. Examination of the mouth revealed an ulcerated jagged sore on the right side of the fauces,



just in front of the tonsil. The cervical glands were much enlarged, the patient had difficulty in swallowing, salivated freely, and was becoming emaciated. The growth had been observed about four months, but latterly had become much enlarged.

CASE 3 occurred in August, and was also a poodle which had been treated for some four months for an ulcer of the mouth. Dysphagia had been noticed for some months, and the enlargement of the cervical glands had latterly much increased. Salivation was profuse, the appetite capricious on account of the soreness of the mouth, and the patient was perceptibly becoming emaciated.

CASE 4, seen in September, was a Pembrokehire terrier, eight years old, of which a sketch and also the larynx was shown. There was a jagged ulcerating wound on the fauces and the cervical glands were enlarged. The owner had observed the patient to be "out of sorts" for about five months, but during the last six weeks had noticed considerable dysphagia, great lassitude, salivation, and general emaciation.

CASE 5, met with last month, was of particular clinical interest on account of the situation of the growth. It was an epithelioma of the œsophagus of a cat. The animal was eight years of age, and was brought for advice on account of a continual gulping movement when swallowing, a capricious appetite, and inability to take solid food. An obstruction in the throat was suspected, and when the probang was passed it could be distinctly felt to go over some foreign body, and then to go on satisfactorily into the stomach. As a repetition of the process always gave the same result, and the obstruction could also be felt when the instrument was withdrawn, a growth of some kind was diagnosed and, as the owner did not (for sentimental reasons) wish for any cutting operation, the patient was chloroformed to death.

All the specimens were proved to be of the squamous-celled variety of epithelioma; in each dog the larynx, floor of the mouth, and palate were affected, there being secondary infection of the cervical glands. In none of the cases had the infection spread to the lungs or digestive tract.

Professor HOBDAY remarked that there was a popular impression to the effect that true carcinoma was not common in the animal kingdom, though veterinary surgeons had for many years known of its occurrence, as also had those who did work in comparative anatomy. But so much attention had been drawn to the subject by the Imperial Cancer Research Fund, that it was found to be comparatively common in animals. Still, he frequently saw it stated in the medical papers that carcinoma was not common in animals. If such an assertion was in the minds of those who

had facilities for expert work on the subject, certain analogies were drawn which were incorrect. For instance, it was said that in the human subject the irritation produced by a pipe and such things was a common precursor of cancer; animals did not smoke, but irritants got across the mouth which produced abrasions in the mucous membrane. In each of the laryngeal cases exhibited the primary wound was apparently just where a bone would get fixed across the back of the throat. That frequently happened in the dog, and it was possible that some irritant there might have caused the sore from which the carcinoma started. The horse and the cow had long been known to suffer from cancer, and in all situations, and he had other specimens. The five exhibited were shown because, being in the larynx, he thought they would possess special interest for members of the Society.

The PRESIDENT said the thanks of the Society were due to Professor Hobday and Mr. de Santi for bringing forward such interesting matter. He did not know that carcinoma was supposed to be so rare in dogs, of which he had kept a fair number during his life, and among these he had only two affected with cancer. The first case was one of carcinoma in the mamma of a bitch, which he had had removed by a veterinary surgeon, as he suggested malignancy. But the veterinary surgeon, in the spirit of Professor Hobday's statement, replied that cancer did not occur in dogs. However, he (Dr. McBride) had it examined microscopically, when it was found to be typical carcinoma. The next was in a favourite dog of his. He did not have it microscopically examined, but it was undoubtedly typical epithelioma of the lip. He removed it himself. Three months later a large gland was found, and he had to have the dog destroyed because it could not swallow.

MR. DE SANTI showed a patient with a *Lesion of the Soft Palate* for diagnosis.

The patient, a girl, aged twenty-two, applied to Mr. de Santi's Out-Patient Department, a week previously, complaining of pain and discomfort in the throat, localised to the left side. She said she had had discomfort in the throat for some weeks.

On examination a bright red patch was observed on the left side of the soft palate, about the size of a shilling; a similar erythematous blush extended from this patch down to and over the pillars of the fauces and tonsil on the left side. The appearance was simply that of erythema; the hyperæmic area presented no signs of enlarged blood-vessels, and was in no sense a tumour. The patient explained that she had seen the condition in her throat for some seven months and that the patch had got larger during that time. Application locally of cocaine and adrenalin solution produced no diminution in the size or brightness of the blush.

The PRESIDENT said the case appeared to him to be one of angioma of the pharynx, or at least a red tumour composed of minute vessels, though he had never seen anything exactly like it before. He showed before the Society some years ago a drawing of a case in which were very

large blood-vessels, in very much the same situation, and that undoubtedly was angioma.

Mr. CRESSWELL BABER thought the condition was probably congenital. It reminded him in an exaggerated degree of the blush met with sometimes in sclerosis of the middle ear, which was, however, usually bilateral.

Mr. DE SANTI, in reply, regretted no suggestions had been offered as to how the case should be dealt with.

Dr. FURNISS POTTER showed a *Case of Growth in the Aryteno-Aryepiglottic Region in a Man, aged Sixty-four* (previously exhibited).

The case was shown at the May Meeting.<sup>1</sup> Since then the swelling had steadily increased. Anti-syphilitic remedies had been administered, but with no appreciable result. There was no pain, and no enlarged glands could be felt.

The case was shown with the view of obtaining expressions of opinion as to diagnosis and treatment.

Mr. BUTLIN said he had not heard Dr. Potter's remarks on the case, and therefore did not know whether he proposed removal of the growth. It appeared to him (Mr. Butlin) to possess all the characteristics of malignant disease, and as Dr. Potter had watched it since October of last year, its progress must have been very slow. Even now he could not feel any enlarged glands, though probably there were some. If there ever was a case in which excision should be practised for cancer of extrinsic origin, the present instance seemed to be one.

Mr. DE SANTI said he remembered seeing the case when previously exhibited, and from what he recollected about the case then and the appearances now, he thought there could be no question about its malignancy.

Dr. STCLAIR THOMSON said he supposed it might be a case of malignant disease in a syphilitic larynx, but he would like to ask Mr. Butlin whether it was not like a case which was seen by Mr. Butlin, Sir Felix Semon, and himself, and in which the growth entirely disappeared after tracheotomy.<sup>2</sup> Dr. Furniss Potter said the present growth went down after tracheotomy, therefore it might be wise to have a second tracheotomy performed, for if syphilitic it would subside much more quickly under appropriate treatment with a tube in the trachea to give the larynx rest. For was it not exceptional for extrinsic malignant disease of the larynx to go so long without more distinct involvement of the glands?

Mr. BUTLIN, in reply to Dr. StClair Thomson's question, said his point was that it was an exceptionally slow case, but it was really so easily within reach that he did not see why one should not be sure about it. A sufficient piece could be removed with cutting forceps to enable the diagnosis to be certainly made.

Dr. FURNISS POTTER, in reply, thanked members for their comments. The tracheotomy tube was removed in less than a week; the man had an acute attack of swelling, producing sufficient embarrassment to

<sup>1</sup> *Vide Proceedings of the Laryngological Society of London*, May, 1904, p. 168

<sup>2</sup> *Proceedings of the Laryngological Society of London*, vol. vii, December, 1899, p. 15.



necessitate tracheotomy. Immediately after the operation the swelling rapidly subsided. He brought the case in order to get an expression of opinion as to whether it was desirable to operate in the uncertain state of the diagnosis. He intended following Mr. Butlin's advice, namely, to try to procure a piece of the growth and submit it to microscopical examination before doing anything further.

Mr. ARTHUR CHEATLE and Dr. W. D'ESTE EMERY showed a *Specimen of Actinomycosis of the Tonsil*.

A girl, aged sixteen, living in the country, was seen on account of deafness. The left tonsil was enlarged and had a rounded, overlapping appearance. The glands on both sides of the neck were enlarged. There was no suppurative lesion anywhere. The tonsil was so curious in appearance that it was sent to Dr. Emery, Clinical Pathologist to King's College Hospital, for examination. This was the first case reported in which actinomycosis had been found in the tonsil in this country. Dr. Wright, of New York, has lately published a similar case.

*Dr. Emery's Report.*—The tonsil was greatly enlarged, and on section it was found to be hyperplastic, and on further examination several "tubercles" (using the word in the histological sense) were found grouped around a crypt, the lower portion of which was greatly dilated. This cyst-like cavity contained large numbers of lymphocytes and of desquamated squamous epithelium, in addition to which there were four colonies of an interesting form of streptothrix. The smallest colony was similar in every way to the colonies of actinomyces usually met with in human pus, and showed a tangled mycelium, with a radial arrangement at the periphery, and a few chain-spores in the middle. The larger colonies showed more spore-formation at the centre, and at the periphery the radial filaments showed a peculiar thickening, which was thought to indicate a form of conidium formation, and not the presence of "clubs." The epithelial walls of the crypt were thickened and showed signs of inflammation, being infiltrated with leucocytes that were obviously making their way through into the central cavity. In one place, however (where it was touched by the mass of streptothrix), the epithelium had disappeared and the fungus impinged directly on an ulcerated surface. Beneath the epithelium there was a narrow band of lymphoid tissue, which was, in its turn, surrounded by a zone of well-formed tubercles, in which, however, no tubercle bacilli could be detected.

It was pointed out that in this case (as in that described by Wright, of New York) the masses of actinomyces were inside the crypts—i.e. in a region which is physiologically outside the body.



In this situation they must have elaborated their toxins, which attracted the leucocytes from the tissues, produced inflammation of the epithelium and sub-epithelial tissues, and finally gave rise to a hollow shell of tubercles at some distance from the mycelial masses.

Dr. HERBERT TILLEY suggested, as such cases were so rare, that some micro-photographs should be taken for publication in the *Proceedings*.

Mr. BUTLIN said a curious case was sent to him from Nottingham, which was one of the noted centres for actinomycosis several years ago. The patient was a young gentleman, who was sent with a flat tumour of the neck. The question was raised as to whether it was malignant disease or not. He concluded that it was not a new growth, but one of the infective tumours, though he had no idea which. It did not appear to be syphilitic, and was not like ordinary tubercle. Then he was asked—as the people from that district were well up in the subject—whether it might be actinomycosis. He replied that he had not seen actinomycosis in that early condition, but he did not know why it should not be. The patient gave a very clear history of having, three or four months previously, walked through a field of wheat, a head of which he had plucked and began to chew. Presently one of the husks lodged in his tonsil, making it bleed. He did not get rid of it for two or three days, but at the end of that time his tonsil got well. Shortly afterwards he found the tumour for which advice was sought. It was opened by Dr. Anderson and found to be actinomycosis. There was a clear history of infection through his tonsil, but the tonsil did not retain the actinomyces. He had seen many cases of actinomycosis, but never one in the tonsil.

Mr. CHEATLE, in reply, said he would gladly supply a photo-lithograph for the *Proceedings* if Dr. Emery could do it. It was entirely due to Dr. Emery that the case was detected at all.

Dr. W. H. KELSON showed a *Case of Laryngeal Growth in a Boy aged six*.

The patient had complained of steadily increasing loss of voice, first noticed after measles, two years previously; on examination a growth could be seen the size of two peas at the anterior commissure. The growth was removed with Mackenzie's forceps, under chloroform, the patient being in the sitting position. It was found on microscopical examination to be a fibroma. On recovering from the anæsthetic the patient's voice was quite clear.

Dr. HERBERT TILLEY said that he could lay no claim to having suggested the removal of papillomata of the larynx under general anæsthesia. What he had frequently asserted was that in order for this method to be successful it was necessary that the anæsthesia should be deep—in fact, pushed so far that the laryngeal reflex was abolished. An expert anæsthetist could, without much danger, provide such a deep narcosis lasting from twenty to thirty seconds, and during those intervals it was possible to remove the growths by means of suitable forceps, because the operator was not hampered by the patient coughing or swallowing.

Dr. FURNISS POTTER asked Dr. Kelson in what position he placed the patient when he removed the papilloma under a general anæsthetic.

Dr. KELSON, in reply, apologised to Dr. Scanes Spicer for not connecting his name with the operative procedure, but he mentioned Dr. Tilley's name because he had heard that gentleman, in the first instance some years ago, speak about that method at some length. The child was sitting on the matron's lap in practically the upright posture. The anæsthetic was chloroform and ether, and was pushed fairly deeply, so that there was no probability of the child moving during the operation.

Mr. H. BETHAM ROBINSON showed a *Case of Pharyngeal Obstruction from a Diaphragm between the Back of the Tongue and the Posterior Wall of the Pharynx*.

The following conditions were observed in a female child aged ten: There was a central destruction of the soft palate with loss of the uvula, and the faucial pillars were dragged back to the posterior pharyngeal wall by firm fibrous adhesions. On the left faucial pillar and tonsil there was active ulceration when she was first seen by Mr. Robinson in September last. From the posterior part of the tongue to the posterior wall of the pharynx there was a horizontal membrane, due to a contracted cicatrix; in the centre of this an oval opening, longer from before backwards, through which just the tip of the epiglottis projected. The left edge of the epiglottis was adherent to the scar. Through the posterior part of the opening was seen the glottic orifice and the very limited communication with the lower pharynx. As to the cause, syphilis seemed to be the most probable, but there was no other evidence to support it; there was no history of it being the sequel of a specific fever like scarlet fever. Dysphagia, which was very marked, had almost disappeared with the use of bougies.

Mr. CRESSWELL BABER said the case was much like one which he himself showed before the Society some years ago, and which was described in Vol. I of the *Proceedings*. In that case the diaphragm contained a heart-shaped aperture which was about two inches across. He thought it was situated rather lower down than in the present instance. He enlarged the opening by removing a small piece about the size of half a sixpence from the posterior part, and dilating it with the finger. There was some difficulty in swallowing, which was relieved, but slight noise during sleep remained. There was no dyspnœa. The trouble supervened upon scarlet fever.

Dr. D. R. PATERSON showed a *Foreign Body removed by Direct Laryngoscopy from a Child aged twelve months*.

The body was a metal collar-stud, which had been impacted in the larynx for three months. While playing with a stud, the child had a coughing fit, and it was noticed directly afterwards that it

made a crowing noise in sleep. Two months later difficulty of breathing set in, and this had increased latterly to well-marked stridor. Skiagraphs taken showed the stud fixed in the larynx in an oblique position with its head anteriorly. This was confirmed on examination by the direct method, when considerable œdema of the entrance of the larynx was made out. The stud was readily seized by the head, but it required firm traction to free it from the œdematous tissue around. The breathing was at once relieved, but it was quite ten days before all trace of stridor had vanished. The absence of interference with respiration at first was no doubt due to the situation of the body, which kept the glottis open, and the gradual onset of œdema caused the block.

The PRESIDENT asked what instrument Dr. Paterson used for the purpose. Was it the röhrenspatel of Killian? It was most interesting that that method should have been found useful in a child of that age.

Dr. PATERSON, in reply, said he used the "röhrenspatel" of Killian and the straight crocodile forceps which he showed at the June meeting of the Society. The patient was under chloroform, with the head over the table. By that means one avoided the nuisance of the mucus in the throat. In two instances he had removed papillomata of the larynx by that method, which possessed enormous advantages over the means he formerly employed, viz. that introduced by Dr. Scanes Spicer. One was also able to dispense with the number of assistants which the old method required.

Dr. EDWARD LAW showed a *Case of Incrustation in the Trachea, with, at times, well-marked Stenosis.*

The patient, aged eighteen, had suffered from hoarseness during the last four years, particularly in the winter; this symptom had greatly increased during the last three months and had been accompanied at times by great difficulty in breathing. There had never been any severe spasm except for two days, two months ago, when she was several times afraid of suffocation. Ipecacuanha was administered, and, after vomiting, the choking sensations were greatly diminished. A disagreeable odour of the breath has been noticed during the last four months. The general health had been good, only breathlessness had troubled the patient on running, going upstairs, or any exertion. The friends considered that the hoarseness was due to living in a damp house.

A week ago the patient was seen for the first time on account of difficulty in breathing; she was anæmic and the voice very hoarse and breathy.

On examination, a little purulent secretion was seen over the middle turbinates and over the remains of Luschka's tonsil, but no incrustations nor dryness were present in the nostrils or naso-pharynx.



In the larynx a few black particles, looking like small pieces of charcoal, were lying on the ventricular bands and vocal cords; whilst, lower down, the trachea appeared to be almost occluded by large, dry, black incrustations, which reduced the lumen of the canal to the size of a quill. The patient tolerated an examination very well, and the peculiarly black incrustations could be followed for a considerable distance down the windpipe. There was a very foetid odour in the breath and some dyspnœa. The symptoms appeared so urgent that the patient was advised to go into the London Throat Hospital for observation. A nasal solution had been employed, and the black incrustations in the trachea had almost disappeared, small greenish-yellow crusts having taken the place of the large black masses; these crusts were now smaller in size and less in number.

The patient had never complained of cough or expectoration, and had apparently swallowed the offensive crusts. This probably accounted for her somewhat unhealthy appearance.

The PRESIDENT said the case was very interesting, and must have been more so when first examined by Dr. Law. To his mind it was certainly a case of laryngitis sicca, with crusting in the trachea. He had seen many such cases where the nose was not affected, but only once a case like that which Dr. Law described his case to be at the beginning. In that case, too, there was immense crusting and obstruction of the lumen, to such an extent as to cause very marked dyspnœa.

Dr. MILLIGAN said that about two years ago he saw, in consultation with Dr. Brooke, of Manchester, a similar case in a young girl, who had typical ozæna, with the condition of the larynx and trachea which had been described. Accessory sinus disease was examined for, but not found, and she was put under routine treatment, without effect, for the crusts continued to form in the larynx and trachea and the stenosis increased. He then suggested that the treatment might be carried on by injecting anti-diphtheritic serum, on the idea first mentioned by Belfonti and della-Vedova, who suggested that those cases might be due to an attenuated form of diphtheria. The patient was taken into a surgical home, where she had the injections, which were continued for nearly two months. The result was very marked improvement; indeed, he thought the condition had ceased altogether.

Dr. DUNDAS GRANT showed a case of *New Growths in the Larynx*.

Louisa H—, aged seventeen, was sent to the Central London Throat and Ear Hospital on August 25, 1904, on account of attacks of dyspnœa for several months so serious as to place her life in danger. In the absence of Dr. Grant, Mr. Stuart-Low examined her and found a growth covering the whole of the upper part of the larynx of an appearance suggesting that of the top of a toad-stool. He performed a temporary laryngotomy and removed a large portion of the growth through the mouth. The dyspnœa



entirely disappeared. When seen three weeks after by Dr. Grant, there remained a round growth of about the size of a small cherry, which appeared to several observers to be growing larger, though with no great rapidity. It was impossible by inspection to decide as to its site of attachment, but from the way in which it could be moved by the probe it appeared to arise from the upper margin of the aryepiglottic fold, near its anterior part. Dr. Grant managed to get a snare round it in such a way as to make it certain that its attachment was well to the front. It proved to be so firm that its removal was impossible without an anæsthetic, and gas was administered while a snare was still *in situ*. Then, by the exercise of a considerable amount of force, the growth was dragged away with a tag of mucons membrane hanging from it. The larynx was then quite clear, although the aryepiglottic fold seemed somewhat ragged and raw. The right vocal cord was fixed. The section made of the first portion of the growth showed what Dr. Wingrave considered to be a spindle-celled sarcoma, but he stated that the difficulty in the diagnosis of growths of mesoblastic tissue was always one of immense difficulty. Another pathologist thought it presented more the appearance of a fibroma. The second portion was found to consist of a capsule and a core, and the neoplasm seems to have been eradicated *in toto*. There is now a slight degree of movement of the right vocal cord, and the raw surface on the aryepiglottic fold has cicatrised. A microscopical section was exhibited for the opinion of the members.

MR. DE SANTI said he had carefully looked at the microscopic section, and his feeling was that it was more like a sarcomatous growth than a fibromatous one. Of course there was a certain amount of fibrous tissue in the section, but he thought the sarcomatous elements predominated.

DR. STCLAIR THOMSON asked whether Dr. Grant was still a supporter of the use of the snare for operations on the larynx. Dr. Grant seemed to have had an unhappy moment when the snare gripped that growth and it would not come away, and the snare would not let go. When the subject was discussed at Oxford there was, of course, a difference of opinion, but many of those who then spoke condemned snares. He wished to know whether the experience of the present case left Dr. Grant a supporter of the snare.

DR. PEGLER suggested that as the specimen seemed to merit a very careful examination, it should be submitted to the Morbid Growths Committee to report upon.

DR. DUNDAS GRANT, in reply, said he would be pleased to place the slide at the disposal of the Pathological Committee, whose report he would await with interest. In any event he would bring the case before the Society again at a future meeting. In answer to Dr. StClair Thomson's question concerning the snare, he did not believe in absolute condemnation of one instrument. He thought there was room for the snare, even though it was much more limited than some of its former admirers thought. He regarded the present case as a very good one for

its application. There was no particular anxiety, and if there had been he would simply have cut the wires and pulled the stem of the instrument away. Where there was a pedunculated growth which the snare could be got round, it was the instrument to use. As he had said in his description, the fact of getting the snare round it enabled him to decide as to its origin, and as to the possibility of getting it away. He was more or less probing with the snare.

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## Abstracts.

### FAUCES.

Wright, Jonathan.—*Actinomycosis of the Tonsil*. "American Journal of the Medical Sciences," July, 1904.

The patient was a boy, aged twelve, whose tonsils were removed on account of chronic enlargement. In the routine of the clinic the tonsils were put in formalin and later cut in sections and stained in hæmatoxylin eosin. A single abscess cavity, which occupied a comparatively large area of one tonsil, was found to contain masses of actinomyces. The boy "went on his way rejoicing, was well a month later, and still remained so, no metastasis having as yet shown itself."

Middlemass Hunt.

Sheard, Charles (Toronto).—*Relative Importance of the Clinical and Bacteriological Evidences in Diphtheria*. "Canadian Practitioner and Review," August, 1904.

Basing his conclusions upon many years' experience, the writer is convinced that we cannot depend exclusively on the findings of bacteriological examinations in these cases. Many instances occur, in which the Klebs-Loeffler bacillus is undoubtedly present, but which present no physical signs of diphtheria.

There are four distinct varieties of the Klebs-Loeffler bacillus—the long, the short, the attenuated, and the pseudo-bacilli. They all produce soluble toxins and are sometimes associated in their action with pus organisms. It is these toxins that produce the symptoms that we designate diphtheria. The virulence and mortality of the disease varies directly with the character of the seed and the soil on which it grows.

The sequelæ are due entirely to the toxins, the extent of membrane being of no consequence in this direction. If we have cellulitis and no adenitis, the condition is most serious, the toxins entering the nerve-trunks and destroying their vitality. Sequelæ may be expected at any time from the third week to the third month.

In post-scarlatinal diphtheria, in which the Klebs-Loeffler bacillus appears in the second week of the fever, but without symptoms, the patients invariably get well and do not reproduce the disease; that is, they are not infective. The writer has records of sixteen such cases.

In another variety scarlet fever and diphtheria were simultaneously in the same patient from two distinct exposures—the incubation period of scarlet fever being about four days, that of diphtheria about six.

Again, there is post-diphtheritic scarlet fever, in which the scarlet fever follows closely upon the diphtheria. This is a very fatal fever, the mortality being about 80 per cent.

Sometimes cases of diphtheria occur in which, notwithstanding weeks of energetic treatment, the bacilli cannot be destroyed; and although such cases have been discharged, no new cases have been known to result from them.

The writer concludes: (1) Is scarlet fever antidotal to diphtheria? The answer appears to be in the affirmative; (2) Does not diphtheria aggravate scarlet fever? The answer again is yes; (3) Is the difference in the two diseases due to the evolution of a soluble toxin by the Klebs-Loeffler bacillus? The last question he does not answer.

Price Brown.

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## PHARYNX.

Teague, R. J. (Roxboro', N.C.).—*Adenoids in Children; A Plea for Early Recognition and Treatment.* "Charlotte Medical Journal," October, 1904.

The paper discusses the etiology, symptoms, diagnosis, and treatment of adenoids. The author considers the "lymphatic diathesis" to be responsible for most cases of adenoids and that adenoids in adults is more frequently met with than is generally supposed. He thinks the only treatment worthy of the name is early, thorough, and complete removal, before the chronic pathological processes in the adenoid and surrounding tissues have commenced.

Macleod Yearsley.

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## NOSE AND ACCESSORY SINUSES.

Cossen.—*Foreign Body in the Nasal Fossa.* "Rev. Hebdom.," August 27, 1904.

Record of a case in which a large calcareous mass was removed by operation. The foreign body had been in for more than forty years, giving rise to suppurating discharge. The body was completely encrusted with lime salts. The patient made a good recovery.

Albert A. Gray.

Axenfeld, Theo. (Freiburg).—*A Contribution to the Pathology and Treatment of Frontal and Ethmoidal Sinusitis and their Orbital Complications.* "Charlotte Medical Journal," October, 1904.

The paper deals with the nasal origin of orbital inflammation and narrates cases bearing upon the subject, those due to ethmoidal disease chiefly occupying the author's attention, and he discusses the question of the condition of the frontal sinus in such cases.

Macleod Yearsley.

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## LARYNX.

Broeckaert.—*Investigation Relating to the Arteries of the Larynx.* "Rev. Hebdom.," September 24, 1904.

After a very careful injection with vermilion the author made an exhaustive investigation into the mode of termination of the smallest branches,

and describes their various anastomoses and distribution. The paper should be studied in full, as it does not well bear abstraction.

Albert A. Gray.

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## TRACHEA.

D. Bovaird (New York).—*Tracheal Obstruction from a Tumour in a Boy aged three.* "Archives of Pediatrics," October, 1904.

The case was a boy, aged two years and eleven months, and is fully reported. His most striking symptom was laboured and stridulous breathing. The difficulty was most with expiration, which was accompanied by symmetrical bulging at the sides of the neck. The boy died during an attempt at operation. The tumour lay between the trachea and œsophagus, connected with both. Its lower part was engaged in the space between the sternum and vertebral column, but the trachea showed no evidence of compression. Microscopically, the tumour was composed of fibrous and fatty tissue. The interest of the case lies in the presence of the tumour in so unusual a situation, and in the absence of difficulties of deglutition. There was hypertrophy of the lower end of the œsophagus and cardiac end of the stomach.

Macleod Yearsley.

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## EAR.

Drew, Douglas.—*A New Method of Skin-Grafting the Cavity after Mastoidectomy.* "Clinical Journal," June 1, 1904.

After performing the complete mastoid operation, a meatal flap is cut after Ballance's method, and the cavity in the bone is packed with gauze through the meatus, the wound behind the ear being sutured throughout. At the end of fourteen days, when the healing of the flap is complete, the grafting is undertaken. A graft is cut large enough to cover the whole surface, and is spread on a piece of moistened silk court plaster with the raw surface uppermost. This prevents it from curling up. The redundant plaster is then cut away all round. The plaster is then laid over the meatus and invaginated through it and carries the graft with it, the edges of the plaster being held by forceps while it is being adjusted to the cavity and while the cavity is being closely packed with gauze to keep it in position. At the end of ten days the plugs may be removed, and the plaster withdrawn and with it the adherent cuticle generally comes away, leaving the graft lining the cavity.

The following advantages are claimed for this method :

1. It renders unnecessary the reopening of the wound.
2. It is much easier to apply the graft to the whole granulating surface, as the flap covering the cavity is not disturbed.
3. The oozing incident on reopening the wound and the risk of blood getting beneath the graft are avoided.
4. It overcomes the troublesome manipulation of adjusting the graft in an irregular and deeply seated cavity. This is insured by pushing the plaster (and graft) home on to the granulating surface by closely packing the cavity with gauze through the meatus.

Middlemass Hunt.



### THERAPEUTICS.

**Voelker, A. F.**—*The Treatment of Diphtheria, with special reference to the Dosage of Antitoxin.* "Clinical Journal," October 12, 1904.

The author summarises his conclusions as to the use of antitoxin as follows: (1) It should be used in every case of diphtheria, whether mild or severe; (2) in cases of faucial diphtheria use 3000 units; (3) in cases of nasal diphtheria use 6000 to 9000 units at once; in laryngeal diphtheria use 6000 units, and repeat the dose in twenty-four hours if the symptoms of obstruction are not diminishing; (4) when symptoms call for intubation or tracheotomy use 6000 units at once and repeat the dose within twenty-four hours if there is not a distinct improvement in the patient's condition; (5) in cases of faucial diphtheria if the membrane does not show signs of separating after twenty-four hours, repeat the injection; (6) the injection should be made with antiseptic precautions into the subcutaneous tissues of the abdominal wall.

*Middlemass Hunt.*

### THERAPEUTIC PREPARATIONS.

**BOROBENPHENE-HEIL; GLYCOBENPHENE-HEIL.** (Henry Heil Chemical Co., 212 and 214, S. Fourth Street, St. Louis, Mo., U.S.A.)

Borobenphene-Heil is a clear, almost colourless, liquid, miscible in all proportions with water, glycerine, alcohol, and almost all liquid official preparations. It is composed of boracic acid, benzoic acid, phenol, and glycerine, and has been found to be a valuable remedy in affections of the ear, nose, and throat where an antiseptic is indicated.

Glycobenphene-Heil is also a powerful but non-irritating antiseptic. It is for external use only; its constituents are similar to those of borobenphene-Heil, and contains in addition pure oxide of zinc.

"**TABLOID**" **DONOVAN SOLUTION.** (Burroughs Wellcome and Co., Snow Hill Buildings, London, E.C.)

The conditions in which arsenious iodide is usually prescribed are generally of such a nature as to demand more or less protracted treatment. "Tabloid" Donovan Solution has been introduced to provide a reliable and convenient means of administering this agent, and hence doses may be taken regularly when the patient is following ordinary pursuits. Each product represents min. 5 (0.296 c.c.) of Liq. Arsenii et Hydrargyri Iodidi, P.B., containing arsenious iodide and mercuric iodide of each gr. 1 : 22 (0.003 gm.).

### BOOKS RECEIVED.

**James Kerr Love, M.D.** *Diseases of the Ear: for Practitioners and Students of Medicine.* Bristol: John Wright and Co.; London: Simpkin Marshall, Hamilton, Kent and Co., Ltd. 1904, 25s. net.

*Medico-Chirurgical Transactions published by the Royal Medical and Chirurgical Society of London.* Vol. lxxxvii. London: Longmans, Green and Co., Paternoster Row. 1904.

**Wyatt Wingrave, M.D.** *Adenoids.* Medical Monograph Series, No. 9. London: Baillière, Tindall and Cox. 1904, 2s. 6d. net.











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